The Journal of the American Medical Profession

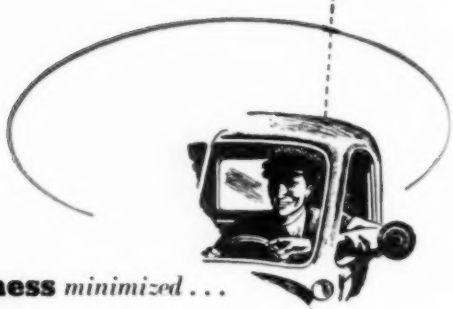
MEDICAL TIMES



Penicillin Therapy in Children
Streptomycin in Pulmonary Tuberculosis
Hypertension
Intrapleural Pneumonolysis
The Choice of Digitalis
Case Reports • Therapeutics
The A.M.A.'s 12-Point Program

Medical Book News — Editorials
Contemporary Progress — Contents Pages 7th, 9th

Vol. 77 June 1949 No. 6



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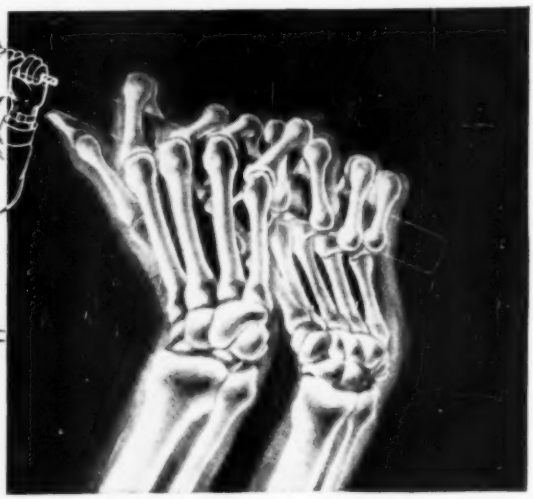
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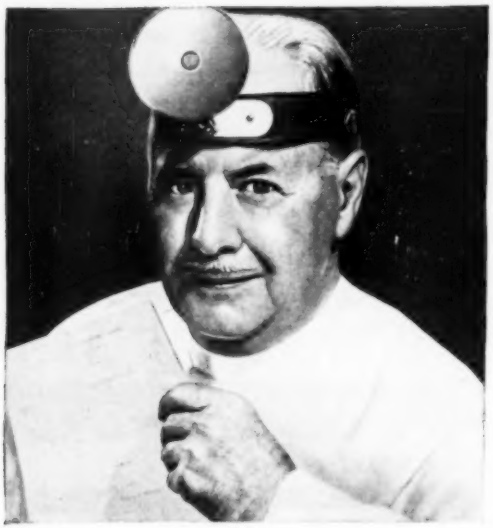
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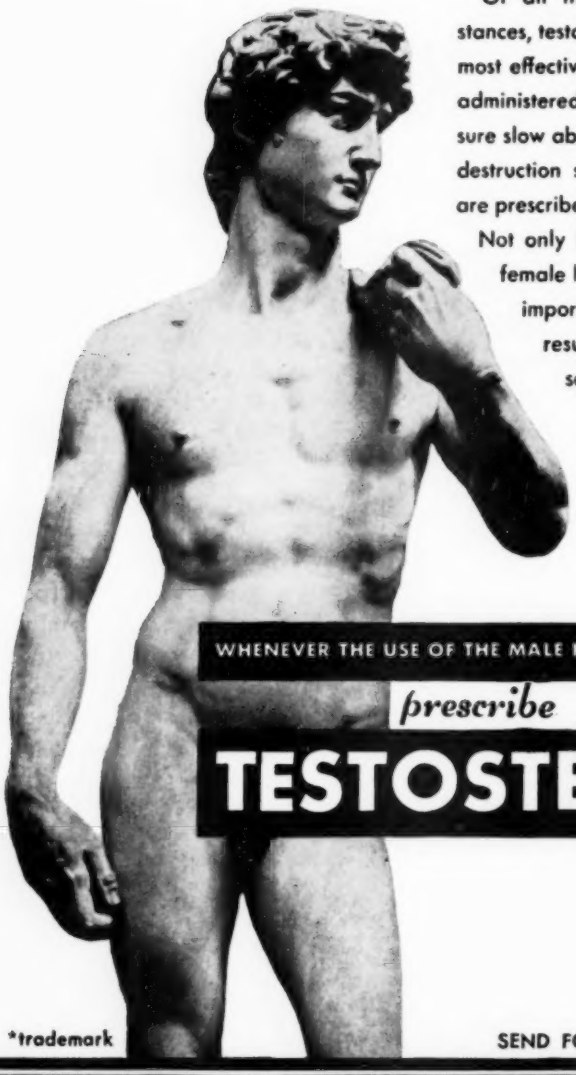
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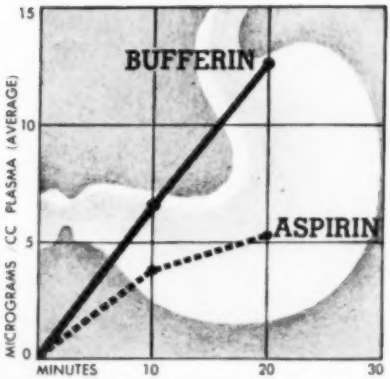
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References: 1. Karnaky, K. J.: Original gynecological and obstetrical research—sterility, endocrine and vaginal operations, M. Rec. & Ann. 35:851, 1941. 2. Smith, O. W.; Smith, G. van S., and Hurwitz, D.: Increased excretion of pregnanediol in pregnancy from diethylstilbestrol with special reference to the prevention of late pregnancy accidents, Am. J. Obst. & Gynec. 51:411, 1946. 3. Meaker, S. R.: A working classification of the causes of abortion, J.A.M.A. 123:680, 1943. 4. Rosenblum, G., and Melinkoff, E.: Preservation of the threatened pregnancy with particular references to the use of diethylstilbestrol, West. J. Surg. Obst. & Gynec. 55:597, 1947.

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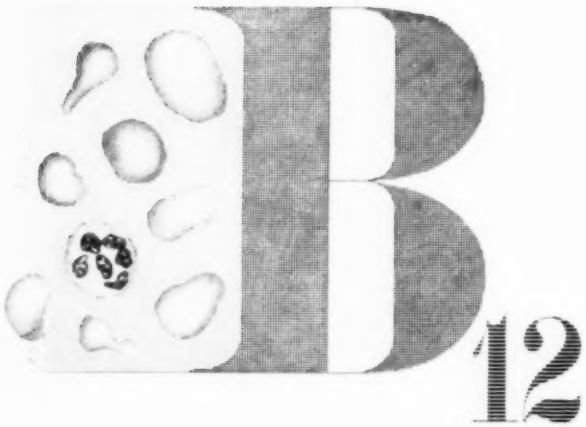
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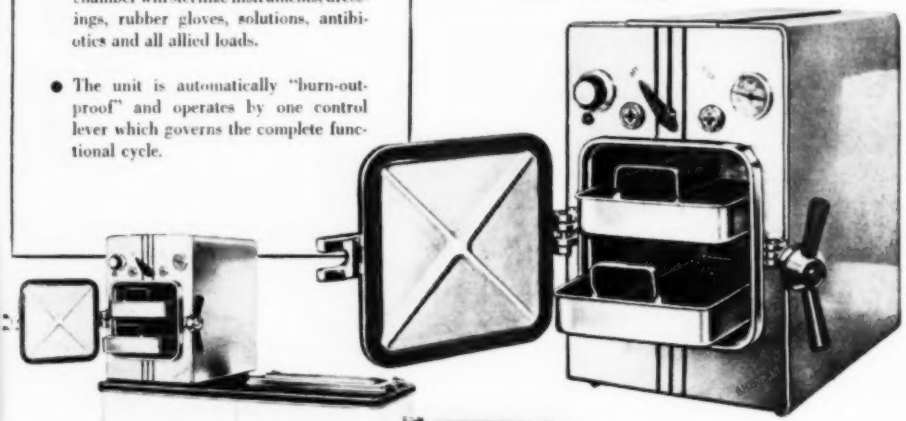
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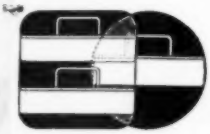
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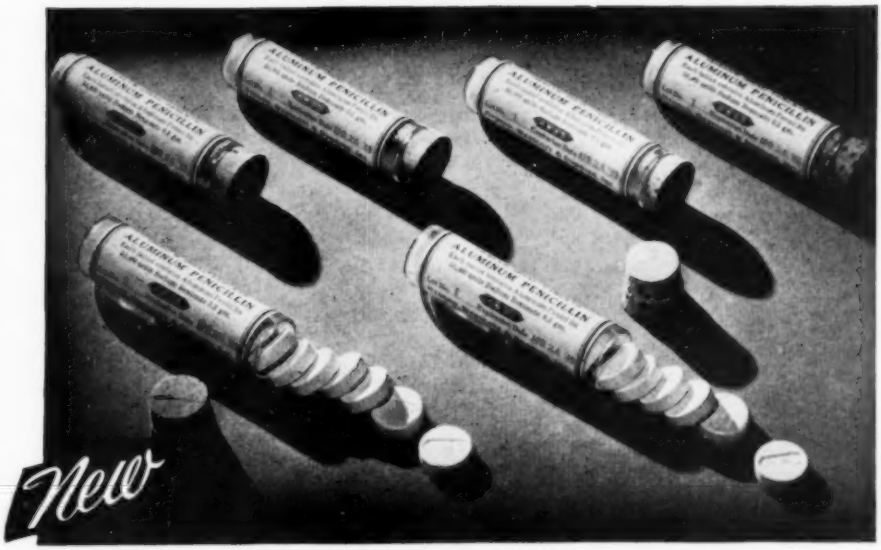
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tolerance to ERTRON

The use of Ertron in rheumatoid arthritis "has been characterized by almost complete absence of toxic effects, despite serum calcium concentrations sustained at high concentrations . . ."[3]

BIBLIOGRAPHY (1) Magnuson, P. B.; McElvenney, R. T., and Logan, E. E.: J. Michigan M. Soc. 46:71, 1947. (2) Snyder, R. G.; Squires, W. H.; Forster, J. W., and Rudd, E.: Indust. Med. 12:663, 1943. (3) Cohen, A., and Reinhold, J. G.: Indust. Med. 17:442, 1948.



Whittier
LABORATORIES
Division Nutrition Research Laboratories • Chicago, Illinois



RELIEVE ITCHING due to IVY POISONING and INSECT BITES

To put a quick stop to pruritic affections of the skin and minimize dangers of secondary infection from scratching, prescribe CALAMATUM *(Nason's)* — *a non-greasy cream* embodying Calamine with Zinc Oxide and Campho-Phenol in an adherent base which requires no rubbing. It's the modern, more effective form of calamine lotion.

PROTECTIVE, DESICCANT MILDLY ASTRINGENT

CALAMATUM *(Nason's)* offers these extra advantages: the tube is easy and safe to carry; applications can be renewed anywhere at any time; no bandaging is required; it dries at once and will not rub off or soil clothing — features particularly effective in the treatment of children.

The use of CALAMATUM *(Nason's)* is not restricted to Summer. It is fast becoming the anti-pruritic of choice for the relief of itching and discomfort due to cold sores and other vesicular eruptions the year-round.

Ethically distributed in 2-oz. tubes by prescription druggists or order direct from:

TAILBY-NASON CO., Boston 42, Mass.

Send for sample

CALAMATUM

(NASON'S)

LETTERS

TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

NATIONAL HEALTH INSURANCE

". . . I am firmly against it. If it were a new idea and had not been tried before—in each trial failure followed—then I would give it further consideration.

"In this country the age expectancy is the greatest in the world, the freedom of choice—whether it be a doctor or grocer—still prevails, and the taxes as high as they are still permit us to live comfortably—despite the fact much of our taxes are siphoned off to help a country with National Health Insurance—England. In this country where is the need for such a thing?

"In such separated localities as New York and Michigan we have Pre-paid Medical Insurance in conjunction with the Blue Cross—where the cost of such insurance is scaled in proportion to the worker's salary. And most important the cost of administration is in the neighborhood of 10 to 13 per cent of the total amount of money taken in. In all our National Bureaus or Departments—can any one of them demonstrate the economy of administration the Doctors' Plan has evidenced?

"National Insurance is in itself a contradiction. The problem is a local one. And it is one that doctors can solve (as demonstrated) rather than law makers."

S.F.J., M.D.
Brooklyn, N.Y.

"Neither the doctor nor the patient would welcome the paternal intrusion of the government in the every-day type of call which probably constitutes about 90 per cent of the patient-doctor relationships.

"However, in that small percentage of cases where the patient is confronted with a crisis, both medical and financial, some form of assistance would be more welcome by both the patient and the doctor."

M.D., New Jersey

". . . I am in favor of some form of National Health Insurance. A plan which will not be under the control of politicians."

M.D., Chicago

—Continued on page 38a

National Announces

RESINAT TABLETS

The excellent response of the medical profession to RESINAT has been most gratifying—the profession seems to realize that RESINAT is the *ideal antacid.*

In answer to the requests of many physicians, National now announces RESINAT Tablets in addition to Capsules and Powder.

TABLETS
CAPSULES
POWDER

Are Now Available

The same rapidity of action, efficacy and therapeutic excellence of RESINAT Capsules and Powder are to be found in RESINAT Tablets.

Samples and literature on request.

Capsules (0.25 Gm.)	*Tablets (0.5 Gm.)*	*Powder (1 Gm.)*

RESINAT

Completely nontoxic anion exchange resin

FOR PEPTIC ULCER

RESINAT PATENT PENDING

THE NATIONAL DRUG COMPANY, PHILADELPHIA 44, PA.

Manufacturers of



Pharmaceutical, Biological and Biochemical Products for the Medical Profession

Modern MEDICINALS



Physicians will find that these brief resumes of essential information relative to the newer medicinals are so prepared that they may be removed and pasted on standard 3x5" file cards, and filed as illustrated in the adjoining picture, for ready reference.

Antihemophilic Globulin

6-49

MANUFACTURER: Cutter Laboratories, Fourth and Parker Streets, Berkeley 1, California.

INDICATIONS: Specific for the treatment of hemorrhagic crises in proved hemophiliacs, antihemophilic globulin usually reduces blood clotting limits within 30 minutes following intravenous injection.

ACTIVE CONSTITUENTS: This natural clotting factor, derived from the fractionation of fresh normal human plasma, is of homologous origin and therefore can be given without danger of foreign protein reactions.

DOSAGE: Administered intravenously for quickest and most direct response. In infants, young children or individuals with poor veins, the intramuscular route is also effective, but slower. The amount of globulin required is determined by variants in the response of the patient. The maximum effect lasts for about 12 to 24 hours, bringing the clotting time of hemophiliacs within the normal range. If coagulation time increases after 24 hours, additional dosage may be indicated.

HOW SUPPLIED: It is supplied dry in 20 cc. vial to be dissolved in 15 to 20 cc. of sterile, pyrogen-free saline or distilled water.

Pentaquine Phosphate

6-49

MANUFACTURER: Abbott Laboratories, North Chicago, Illinois.

INDICATIONS: Intended primarily for use in combination with quinine as a curative agent for vivax malaria. Plasma levels are quickly attained and are sustained somewhat longer, though at a slightly lower level, than with pamaquine.

ACTIVE CONSTITUENT: Pentaquine phosphate.

DOSAGE: Pentaquine alone is relatively ineffective as a curative agent for vivax malaria, but a daily dose of 30 mg. of pentaquine base (40 mg. of pentaquine phosphate) with 2 Gm. of quinine sulfate has been found highly effective in ambulatory white-skinned adults. Persons who are not white-skinned should be given pentaquine only where facilities are available for early detection and control of possible toxic effects. All patients should report for daily urinalysis and hemoglobin determination the first week and every third day thereafter as a precaution against hemolytic anemia. Pentaquine should not be administered to patients showing renal damage. It should not be given concurrently with sulfonamides or any antimalarial drug other than quinine, and it should not be used for long-term suppressive or prophylactic treatment of any form of malaria.

HOW SUPPLIED: Tablets representing 10 mg. of pentaquine base (containing 13.3 mg. of pentaquine phosphate) are supplied in bottles of 50 and 1000.

—Continued on following page



LUSYN

3 IMPORTANT THERAPEUTIC VALUES IN A SINGLE TABLET

ANTISPASMODIC. Homatropine Methylbromide 1/24 gr. Comparable to 1/50 gr. atropine in antispasmodic effect on the stomach and only 1/54th as toxic.

SEDATIVE. Phenobarbital 1/8 gr. Allays apprehension; relieves nervous and emotional disturbances.

ANTACID-ADSORBENT. Alukalin 5 gr. Kaolin activated with alumina gel.

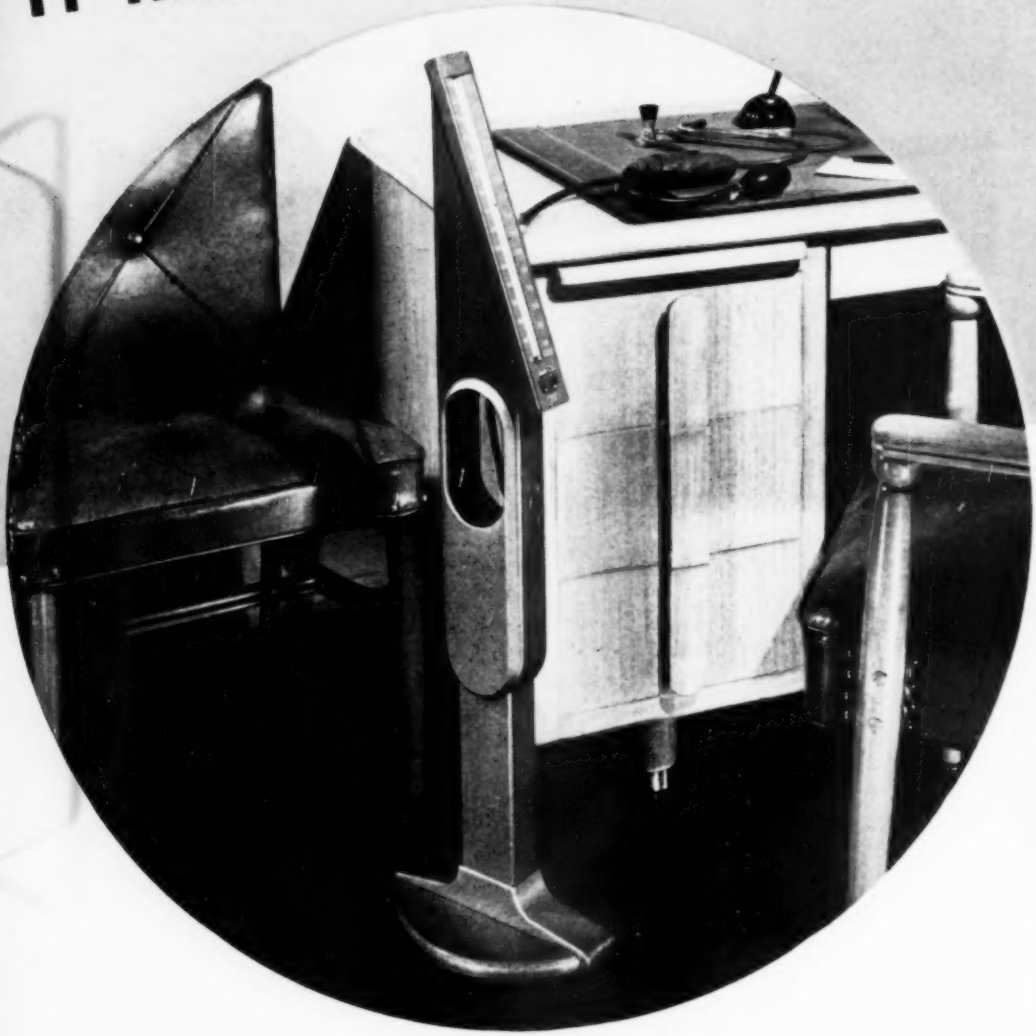
A THREE-FOLD ATTACK ON GASTROINTESTINAL DYSFUNCTIONS

AVAILABLE IN BOTTLES OF 100, 500 AND 1000 TABLETS

NEWARK 1, Maltbie NEW JERSEY

FOUNDED 1888

IT HAS WHAT IT *Takes . . .*



Get the *Facts* and you will buy a STANDBY Model Baumanometer

Lifetime
Baumanometer
STANDARD FOR BLOODPRESSURE

FOR THE *Busy Doctor's Office*

Designed to give maximum service *anywhere* in the busy office . . . the STANDBY Model Baumanometer is light in weight, easy to move and complete in every detail. Simply place it next to the patient—*anywhere* in the office—by desk, chair or table. This true mercury-gravity instrument with the wide open EXACTILT Scale will give you scientifically accurate bloodpressure readings quickly and with the greatest of ease.

Ask any one of the thousands of doctors using a **STANDBY** Model . . . they tell us that it is a most satisfactory piece of equipment . . . that it is truly an indispensable part of their armamentarium.



It is accurate

It is practical

It is smart

SPECIFICATIONS

Calibration 300 mm. Size 38½" high x 11½" wide at base. Weight 7 lbs. Additional 3 lb. weight for base included at no extra charge. Body die-cast of Magnesium. Base and scale die-cast of zinc. Hard wear-resisting enamel Silvertone finish. Lifetime guarantee against glass breakage.

Automatic eye-level reading from either standing or sitting position is accomplished by another EXCLUSIVE Baum feature THE EXACTILT SCALE . . . which is permanently fixed at the precise angle for maximum reading efficiency.

Designed with your office needs in mind. . . . No adjustments necessary, it is always ready for instant use anytime . . . ANYWHERE in your office.

Your surgical instrument dealer will gladly send you one for your inspection.

W. A. BAUM CO., INC., NEW YORK 1

ORIGINATORS AND MAKERS OF BLOODPRESSURE APPARATUS EXCLUSIVELY

Declid

6-49

MANUFACTURER: Decyl Pharmacal Co., Princeton, N. J.

INDICATIONS: For psoriasis and neurodermatitis.

ACTIVE CONSTITUENTS: Undecylenic acid. Ordinary commercially available undecylenic acid supplied for *external uses* is not recommended, since its possible effect when taken internally are unknown.

DOSAGE: As indicated.

HOW SUPPLIED: In bottles of 100 capsules, 0.44 Gm. each.

Protogel

6-49

MANUFACTURER: Wyeth, Inc., 1600 Arch Street, Philadelphia 3, Pa.

INDICATIONS: For application to the skin surrounding intestinal fistulas, and for moist pruritus ani. It dries to form a protective coating that resists the corrosive action of oozing intestinal secretions, and relieves itching and burning.

ACTIVE CONSTITUENTS: A soothing paste composed of alumina gel with kaolin.

DOSAGE: Applied locally.

HOW SUPPLIED: Tubes of 1 and 4 oz.

Priscoline

6-49

MANUFACTURER: Ciba Pharmaceutical Products, Inc., Summit, N. J. A change in name from Priscol to Priscoline has been announced for this new vasodilator. The change in name has been made to avoid conflict with Drisdol, manufactured by Winthrop Stearns.

Chloresium Aerosol Solution

6-49

MANUFACTURER: Rystan Company, Inc., 7 N. MacQuesten Parkway, Mount Vernon, N. Y.

INDICATIONS: Chloresium aerosol solution is suggested for the inhalation therapy of all the usual respiratory tract infections. Among the upper resipratory tract conditions in which its value has been repeatedly demonstrated are: Acute and chronic sinusitis; rhinitis; pharyngitis; ordinary coryza; ozena and atrophic rhinitis. By virtue of modern inhalation techniques, Chloresium aerosol solution can reach the finest divisions of the respiratory tree. It is therefore particularly suggested in treating infections of the lower respiratory tract, including: acute and chronic laryngitis; bronchitis; bronchiectasis; lung abscesses and other deep-seated inflammatory conditions.

ACTIVE CONSTITUENTS: A specially processed preparation containing the purified therapeutically active water-soluble derivations of chlorophyll "a" ($C_{55}H_{72}O_5N_4Mg$), designed for use with any standard nebulizing equipment. It is a natural, nontoxic biotherapeutic agent and may be used, where indicated, as a solvent vehicle for penicillin and other antibiotic inhalation therapy.

DOSAGE: Chloresium aerosol solution should be employed only in standard nebulizing equipment and exclusively for inhalation therapy. Do not use as nose drops, nasal packs or by irrigation. The usual dosage requirements are 1.0 to 2.0 cc., completely nebulized at each treatment. Minor upper respiratory infections usually respond to morning and evening treatment. More serious infections may require treatment every three or four hours. Such prolonged contact, especially in chronic cases, accelerates the healing process.

HOW SUPPLIED: Chloresium aerosol solution, ½ oz. bottles.

Alhydrox*

Builds solid immunity step by step

Like Mr. McGinty's brick wall which stands solidly against the ravages of time because he builds it carefully, solidly, brick upon brick, the immunity you build with CUTTER "ALHYDROX" vaccine is solid.

*Cutter trade name for aluminum hydroxide adsorbed products.

"Alhydrox" *is a CUTTER exclusive*—developed and used exclusively by CUTTER for its vaccines and toxoids. It supplements the physician's skill by producing these immunizing advantages:

1. **"Alhydrox"** *adsorbed antigens are released slowly from tissue, giving the effect of small repeated doses.*

2. **"Alhydrox"**, *because of its more favorable pH, lessens pain on injection and reduces side reactions to a minimum.*

3. **"Alhydrox"** *selectively controls the absorption of antigens, reducing dosage volume while building a high antibody concentration. Reduced volume means less tissue distention and less pain.*

CUTTER LABORATORIES • BERKELEY 10, CALIF.

Specify "Alhydrox" when you order vaccines

AN EXCLUSIVE WITH... CUTTER





routine for discovery

The national total of undiagnosed or "unknown" diabetics may run from a million to two or even three.[1, 2] Modern treatment, when promptly initiated, can do much to prevent metabolic decompensation and to minimize diabetic complications. Therefore, the clinical revealment of diabetes mellitus at an early stage is essential.

Thus, "all patients who present themselves to the physician for an examination should have a routine urine examination."[3] In this phase of practice, the advantages of *Clinitest*® tablets for urine-sugar analysis are considerable.

Clinitest is dependably accurate, yet it takes only a few seconds to perform. The test is simple—no external heat need be applied; interpretation is by direct color comparison. *Clinitest* is convenient both for the doctor's office routine and for the diabetic patient's prescribed sugar-level checkups.

(1) Joslin, E. P.: Postgraduate Med. 4:302 (Oct.) 1948. (2) Kemper, C. F.: Rocky Mountain M. J. 45:1092 (Dec.) 1948. (3) Pollack, H.: New York Med. 4:15 (Dec. 5) 1948.

Clinitest

for urine-sugar analysis

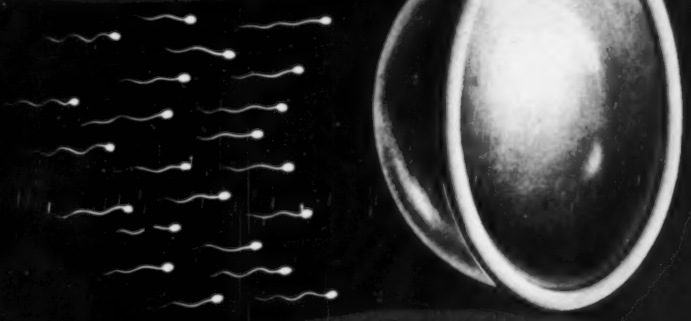
AMES

AMES COMPANY, INC • ELKHART, INDIANA

BUFFALO GAP

TEXAS

POPULATION 250



Prescribed in Buffalo Gap, Texas, or Baltimore, Maryland, Ortho-Gynol and Ortho-Creme are as readily available as the local pharmacy. Most widely prescribed and most widely used, these preparations are carried in practically every pharmacy in the United States. This almost perfect distribution plus the certainty of action, safety in use and low cost of Ortho products have made control of conception clinically feasible wherever indicated—wherever prescribed.

ortho-gynol

Ortho-Creme

whenever indicated—wherever prescribed ortho

Copyright 1948 Ortho Pharm. Corp., Raritan, N. J.

when the problem is
impaired fat absorption
MONITAN is the solution



I·V·C ®

MONITAN

a new approach to a group of common and difficult clinical problems

MONITAN is a palatable solution of sorbitan monooleate polyoxyethylene derivative.

MONITAN will efficiently emulsify fats, oils and fat-soluble substances for better absorption.

MONITAN is indicated in the treatment of impaired fat absorption and where excess quantities of fat are excreted (steatorrhea).

Celiac Disease—Impaired Biliary Cycle—Sprue—Pancreatic Fibrosis—Regional Enteritis—Intestinal Hypermotility—Reduced Absorbing Surface in the small intestine—Diminution of Digestive Enzymes—Malnutrition due to improper fat absorption*

MONITAN is given orally.

Adults—one to two teaspoonfuls three times daily with meals or as prescribed.

Children—under three months at doctor's discretion.

3 to 6 months	5—10 cc.
6 months to 1 yr.	10—15 cc.
1 year to 6 years	15—20 cc.
over six years	20—25 cc.

MONITAN is supplied in 12-oz. bottles.

WRITE TO: Medical Department for additional information and samples.

* Jones, C. M., Culver, P. J., Drummey, G. D., and Ryan, A. E.: Ann. Int. Med. 29:1,1948.

IVES-CAMERON COMPANY, INC.

22 East 40 Street, New York 16, N. Y.

Simplified Control of

DIAPER DERMATITIS

Due to Ammoniacal Urine

METIONE

REG. U. S. PAT. OFF.

[METHIONINE]

GRANULATED

The results of over forty years of investigation establish that ammonia occurs in the urine as a product of internal metabolism.

*New clinical findings** demonstrate that METIONE† combats the development of ammoniacal urine, thus preventing or controlling napkin dermatitis due to this cause. The daily administration of 3 grains of methionine as provided in METIONE GRANULATED effected disappearance of ammoniacal urine within two to three days in 54 instances. When given prophylactically to 50 infants, no case of ammoniacal urine developed.

METIONE GRANULATED is designed especially for pediatric use. Dissolves quickly in milk . . . well tolerated.



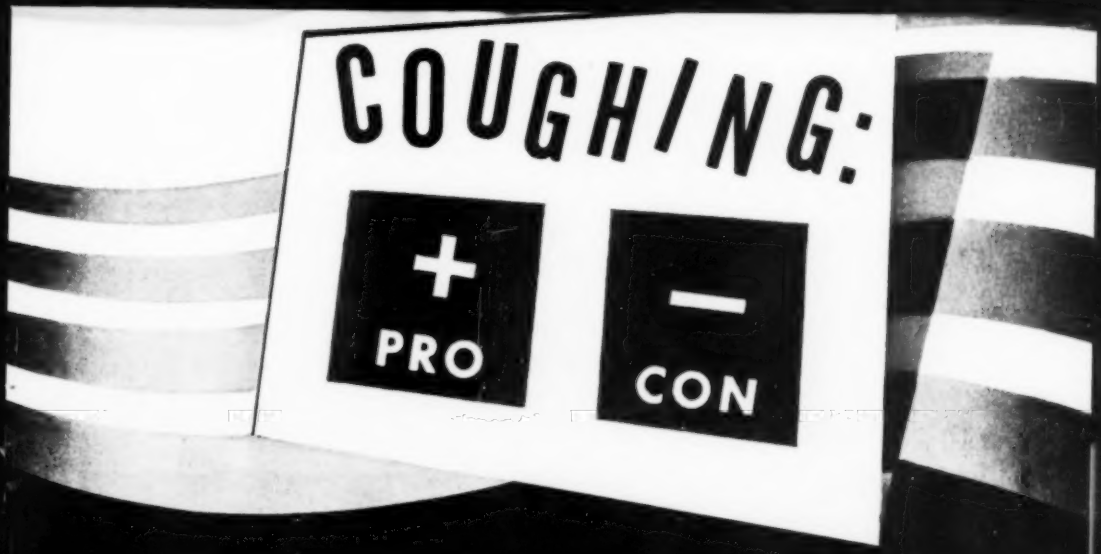
(This product is not to be confused with METIONE Powder, which is flavored, and designed for use in adults.)

METIONE GRANULATED is supplied in bottles containing 30 Gm. (1 oz.). One level teaspoonful supplies 3 gr. (0.2 Gm.) of D,L – Methionine. Literature and samples will be sent to physicians on request.

*Goldstein, L. S.: Tuberculology, August, 1948.

†The word METIONE is a registered trademark.

THE DEBRUILLE CHEMICAL CORPORATION
1841 BROADWAY NEW YORK 23, N. Y.



On the one hand, a hyperactive cough is distressing, debilitating and menacing. Violent bursts of coughing, especially in the oldest and youngest patients, are a burdensome obstacle in the path of recovery and may threaten serious complications.

DIATUSSIN®

Bischoff

promptly and effectively controls cough spasm and averts its dangers.

On the other hand, the physiologic cough-reflex is a protective necessity, for it permits expulsion of mucus, irritants and pathogens from the bronchial tree. Therefore, this reflex should not suddenly be narcotized into non-existence. DIATUSSIN is non-narcotic. It decreases cough frequency and strain and liquefies thick mucus without eradicating the beneficial cough-reflex. And DIATUSSIN is palatable and well tolerated by patients of all age groups.

Samples and literature are available upon physician's request.

DIATUSSIN concentrated extract. 2 to 7 drops depending on age, two or three times daily. Supplied in 6 cc. dropper bottles.

DIATUSSIN Syrup: each teaspoonful contains 2 drops of concentrated extract. Supplied in 4 oz. and 1 pint bottles.

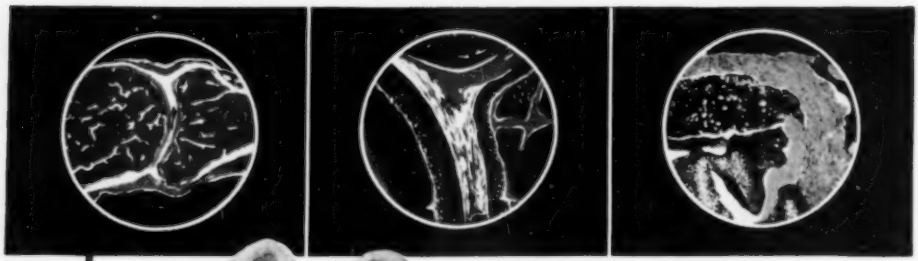
ERNST BISCHOFF COMPANY, INC · IVORYTON, CONN.

A NEW ANTI-ARTHRITIC

for your prescription

SUCCINOL TABLETS

For faster, more lasting control of arthritic and rheumatoid symptoms





- ***does not*** cause hypoprothrombinemia
- ***does not*** lower renal threshold of sugar elimination
- ***does not*** cause gastrointestinal disturbances

Combining a catalytic agent which stimulates tissue metabolism, plus a non-toxic analgesic-antipyretic, each Succinol Tablet contains:

Calcium Succinate . . . . . 0.3 Gm.
Phenylsemicarbazide . . . . . 0.2 Gm.

Average Dosage: 4-8 tablets daily, 1-2 before each meal and on retiring.

Ethically promoted. Now available at your pharmacists. Write for generous sample and professional literature.



Available in bottles of 100 tablets

THE SUCCINOL COMPANY

3 MAIDEN LANE, NEW YORK 7, NEW YORK

ACCEPTED
COUNCIL ON PHARMACY AND CHEMISTRY
AMERICAN MEDICAL ASSOCIATION

NOW ACCEPTED

SULFADIAZINE with SODIUM LACTATE—MRT



Each 5 cc. (one teaspoonful) provides:

0.5 Gm. Sulfadiazine
1.5 Gm. Sodium Lactate

in Palatable Liquid Suspension

Therapeutically Active • Minimum Renal Involvement • No "bicarb" Therapy Needed • Self-Alkalizing • Ideal for Infants as well as Adults • Palatable • Easily Administered Either Plain or Admixed.

SULFADIAZINE WITH SODIUM LACTATE—**MRT**—available in 16 fluid ounce and gallon containers at all prescription pharmacies.

SULFADIAZINE WITH SODIUM LACTATE—**MRT**—another original contribution of Marvin R. Thompson—is manufactured under U. S. Patent No. 2,460,437.

no coined names . . . specify **MRT**

literature and samples on request

original contribution by **MARVIN R. THOMPSON, INC.**
STAMFORD, CONNECTICUT
Service to Medicine

MRT

(ammonia dermatitis)

DIAPER RASH

Diaparene

TABLETS + OINTMENT

THE ANTI-AMMONIACAL RINSE FOR NIGHT DIAPERS

THE WATER-MISCIBLE ANTI-BACTERIAL FOR DAY CARE



Prescribed together they—

ELIMINATE CAUSE OF DIAPER RASH!

WIDELY DOCUMENTED

Pharmaceutical Division
HOMEMAKERS' PRODUCTS CORPORATION
380 Second Avenue, New York 10, N. Y.
36-48 Caledonia Road, Toronto 10, Canada

Please send me, without cost, literature and samples of DIAPARENE Tablets and Ointment to eliminate cause of diaper rash (ammonia dermatitis) and as an adjunct treatment and deodorant for the side effects of incontinence.

Dr. _____

Address _____

City _____ Zone _____ State _____

MAIL THIS COUPON TODAY

LETTERS

continued

FEE SPLITTING

". . . In all my practice and among my colleagues this question is entirely foreign and unknown.

"I believe that the probability of its existence is so far beneath the dignity of our profession that it should be contemptuously condemned by us all."

R.B., M.D.
Springfield, Mass.

"There is certainly less talk in regard to this. And I believe there is surely *much less* of it done."

C.W., M.D.
Neb.

REPRINTS

"Any review should cover the most recent literature most thoroughly.

"This review (Eclampsia in Pregnancy) should cover 1948 and 1949 better.

"Textbook opinions should be avoided in a review. I can read the textbook myself."

Sidney Friedenberg, M.D.
Camden, N.J.

THE CLOSED STAFF

"Let us approach this subject not so much from the point of view of those who have, and those who have not, or of those who are staff members and those who are not admitted, but rather in behalf of the democratic rights of the physician for whose freedom the A.M.A. and its suborganizations contend so bravely while the question of 100 per cent free medicine or partly compulsory medicine is at stake. The American doctors—men with free minds—unrestricted by Government directives and controls, have given to the people of the United States the most effective and widely distributed medical care that has ever been provided for any comparable number of people anywhere at any time. They have progressively provided a higher and higher quality of medical care for the people of the United States until this care is second to no other in the world. But this freedom, through the closed staff system of most hospitals, is partly nullified and partly endangered. There are thousands of general practitioners practicing in cities, towns and in the country who have never set foot inside those hospitals into which they send their hospital cases; for the simple

—Continued on page 42a

Here's why RECTALGAN provides immediate Symptomatic Relief on application



Also following
PERINEAL SUTURING
in Obstetrics and Gynecology

•

NOT A SUPPOSITORY
NOT AN OINTMENT



With RECTALGAN there is no waiting time for the vehicle to melt or dissolve while at rest in the ampulla.

FORMULA:

Benzocaine	4.5 %
Carbolic acid	1.75 %
Menthol	0.5 %
Ephedrine Alk	0.125%

DISSOLVED IN OILS Q. S.
(MALLON PROCESS)

SUPPLIED: In bottles of 55 cc. (approx. 24 applications) with self-lubricating Rectal Applicator.

AVAILABLE: At all pharmacies.

RECTALGAN — The *Liquid* Topical Anesthesia when applied, spreads and covers the entire involved pathologic area. It is absorbed rapidly . . . being non-occlusive will penetrate even the minutest fissure . . . and its efficient anesthetic and anti-pruritic action is noted almost immediately. Its simplicity of use and freedom from distasteful features are greatly appreciated by the fastidious patient.

•

Strictly an ethical product advertised only to the profession.

Trial supply sent to physicians on request.

MALLON DIVISION of DOHO CHEMICAL CORP., New York 13, N. Y. • Makers of AURALGAN and O-TOS-MO-SAN

PRECALCIN

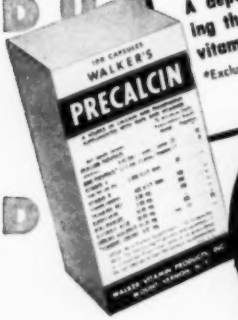
DURING PREGNANCY

Each easy-to-take, colorful PRECALCIN* capsule supplies:

DICALCIUM PHOSPHATE (Anhydrous)	0.45 Gm. (7 grains)
BONE PHOSPHATE†	0.15 Gm. (2½ grains)
VITAMIN A (From Fish Liver Oils)	2,000 U.S.P. Units
VITAMIN D (Irradiated Ergosterol)	400 U.S.P. Units
THIAMINE HCl	3.00 mg.
RIBOFLAVIN	2.00 mg.
NIACINAMIDE	10.00 mg.
ASCORBIC ACID	30.00 mg.
FERROUS GLUCONATE	45.00 mg.
†FLUORINE CONTENT	0.07 mg.

A dependable, convenient method of protecting the expectant mother against mineral and vitamin deficiencies.

*Exclusive trademark of Walker Vitamin Products, Inc.

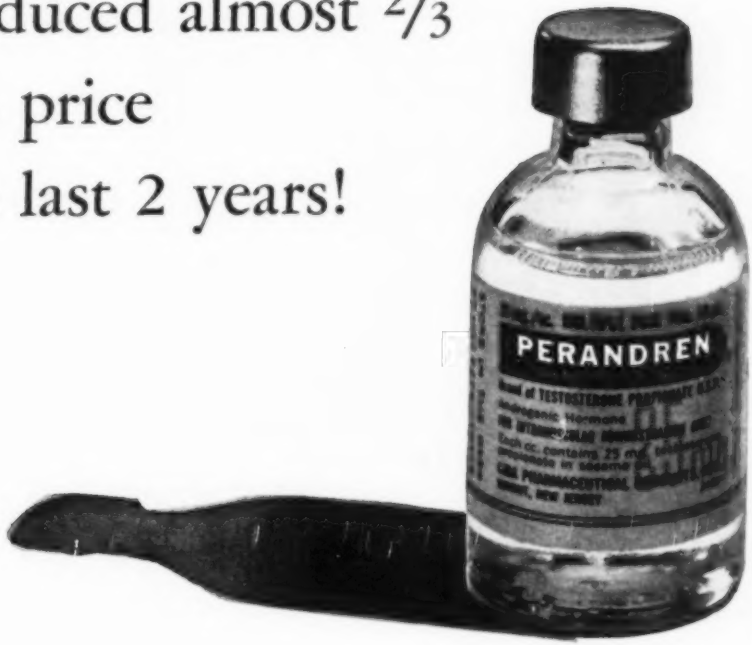


Walker
VITAMIN PRODUCTS, INC.
MOUNT VERNON
NEW YORK

PRECALCIN
GNANCY
RECALCIN
NANCY
ECALCIN
ANCY
PRECALCIN
GNANCY
PRECALCIN

Perandren

reduced almost 2/3 in price in last 2 years!



Perandren is the pioneer brand of testosterone propionate, the most potent androgen available.

Due to increasingly wide use of this injectable male sex hormone, larger volume of production, and improved manufacturing methods, its cost has been progressively reduced until today it is only about ⅓ of the cost 2 years ago. Now androgen therapy can be employed for a larger group of patients.

PERANDREN: Multiple dose vials of 10 cc., 10, 25 or 50 mg.
Ampuls of 1 cc. containing 5, 10 or 25 mg. Cartons of 3, 6 or 50.

Ciba PHARMACEUTICAL PRODUCTS, INC., SUMMIT, NEW JERSEY

PERANDREN (brand of testosterone propionate) • T. M. Reg. U. S. Pat. Off. 2/1492M

Meyenberg

evaporated

GOAT MILK

Gives prompt proven relief



FOR THE colic, diarrhea or vomiting of *cow's milk lactalbumin allergy*... or in borderline cases when such sensitivity is suspected, prescribe Meyenberg, the original evaporated goat milk.

Meyenberg Evaporated Goat Milk is nutritionally equivalent to evaporated cow's milk—economical, sterilized, easy to prepare. Available at all pharmacies in 14-oz. hermetically-sealed containers.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

SPECIAL MILK PRODUCTS, INC.

LOS ANGELES 25 CALIFORNIA

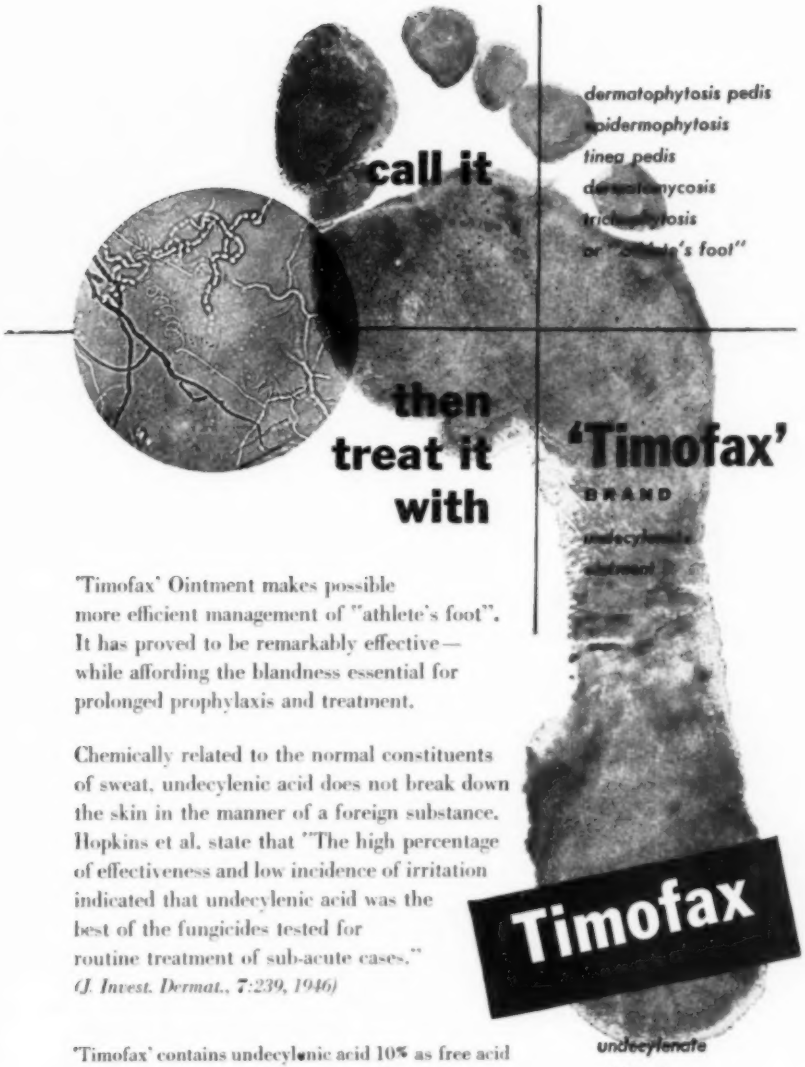
LETTERS

continued

reason that they have no hospital connection and are not welcome. By reason of lacking hospital connection, they are more or less excluded from engaging in medical and surgical procedures for which they are qualified and entitled to apply by reason of training and experience. For their necessary postgraduate training, year by year, they have to take expensive postgraduate training courses given by universities and various other institutions in order to keep up their standards as progressive physicians. Their non-admittance to hospital staffs deprives them of their prestige and discriminates against them in the eyes of their patients.

"A kind of sectarianism is manifested by the hospital staffs toward the unfortunate physicians who find closed doors. For most physicians the hospital is or should be a teaching and learning center whose activities should be opened to all. The closed staff raises the question of free medicine or socialized medicine. A not to be under-estimated number of physicians turn their backs more and more from colleagues and organizations who have democracy on their lips and oppression in their minds and gaze toward a system that will guarantee rights and open doors in hospitals now no more than a holy domain for a small clique of professional specialists. The question becomes more urgent because of the voluntary insurance plans, or other physician-sponsored medical service plans, now growing at a remarkable rate. The State Medical Societies have asked their members to consent to this voluntary payment plan for hospital and medical care. They assented, assuming that this contract between the State Medical Societies and themselves would not be one-sided but would give them the opportunity to treat their patients at home and in the *hospital*. But in reality these doctors are still excluded and unable to fully function; they still have to give their surgical, obstetrical and gynecological cases to the staff specialist, who takes the fee and does not think about the discrimination to which his unfortunate physician-brothers are exposed. Equal rights for licensed physicians demand open staffs for every well qualified physician. If the doctor has no hospital connection, the alleged free choice of the doctor by the insured person in all privately owned insurance plans lacks sincerity and meaning. When the staff members free themselves from the suspicion of monopoly and the hospitals free themselves from supposed misrepresentation as to being closed shops in the hands of a small but powerful clique of staff members, then the closed staffs in hospitals should be abolished."

G.L., M.D.
Maine



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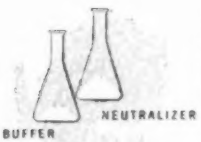
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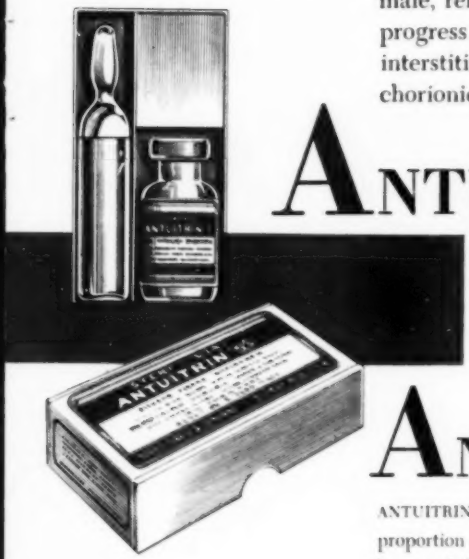
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Psoriasis and Neurodermatitis

New Concept

Psoriasis and neurodermatitis are treated systemically in a new therapy developed clinically by Perlman[1].

The medication used is a refined grade of undecylenic acid specifically selected for oral administration. Preliminary reports on clinical usage show definite response in a majority of the cases treated.

Why and how this new form of undecylenic acid works is not yet known. It is an odd-numbered carbon atom unsaturated straight chain fatty acid, and may play an important role in abnormalities in fatty acid metabolism.

Description

The undecylenic acid used by Perlman and others for their cases is now available under the name of Declid Undecylenic Acid Capsules.

Declid Undecylenic Acid is supplied in soft gelatin capsules, 0.1 g. Uncapsulated, the acid is an oily, water-insoluble liquid with a fatty odor and bitter taste.

Tolerability

Declid Undecylenic Acid has been administered in large daily dosages over long periods without severe side reactions or toxic symptoms.

After taking Undecylenic Acid, some patients complain of a bitter taste in the mouth, mild nausea, belching or dyspepsia. These are relieved by antacids. Increased bowel activity is sometimes noted. When justified, reduced dosage or temporary cessation of treatment is advised. These side effects, in most cases, do not reappear when full dosage is resumed.

Dosage

Declid Undecylenic Acid is not a fast-acting drug. Quick response should not be expected. The optimum dosage has not been determined. The physician must evaluate

CLINICAL RESULTS

Favorable responses in 25 cases of psoriasis and neurodermatitis are reported by Perlman[1].

In the cases reported so far, these improvements have been noted in varying degree in the different patients:

1. Subsidence of itching.

2. Complete or partial disappearance of lesions.

3. The probable prevention of recurrence by maintenance dosage.

In cases of psoriasis associated with arthropathies, Perlman[2] noted in a preliminary report that arthritic pains diminished or disappeared following oral undecylenic acid treatment. He has found relief and improvement from symptoms in 6 cases of arthritis and bursitis not complicated by psoriasis and urges further research by others.

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each case and adjust the dosage to the response.

The capsules may be taken between meals, after eating, or with food, as best tolerated by the patient.

Suggested dosage schedule. *First week:* Four Declid Capsules 3 times daily; *Second week:* 6 Capsules 3 times daily; *After second week:* 8 to 10 Capsules 3 times daily if needed and continued for several months or until complete disappearance of lesions. Tolerability is enhanced by taking the capsules with a carbonated beverage, water or ginger ale.

If high dosages are taken over long periods, frequent urinalyses and blood counts are recommended.



Declid Undecylenic Acid Capsules, 0.44g. each, are supplied in bottles of 100 and 1,000.

Adjunctive Therapy

The response to Declid Undecylenic Acid has been accelerated by external use of a medicated ointment, such as ammoniated mercury 3% and salicylic acid 3% in anhydrous lanolin-petrolatum base.

Contraindications

Oral therapy with Declid Undecylenic Acid is new, and much is still unknown about its effect on metabolism. Therefore, *it should be administered with caution*, and not to debilitated, diabetic or hypertensive patients, or those with coronary or gall bladder symptoms.

Caution

It must be emphasized that all the clinical work reported has exclusively employed only this particular grade of undecylenic acid. Ordinary commercially available undecylenic acid supplied for *external uses* is not recommended, since its possible effects when taken internally are unknown.

Declid Undecylenic Acid is to be dispensed only by or on the prescription of a physician. Literature available on request.

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Streptomycin Treatment of Pulmonary Tuberculosis

Marc Daniels, M.D., M.R.C.P., D.P.H.*
London, England

In September, 1946, a special committee of the Medical Research Council of Great Britain was asked to plan clinical trials of streptomycin in tuberculosis. At that time the amount of this drug available to Britain was very small. Preliminary results of trials in clinical tuberculosis had been published in the United States, and the clinical results in pulmonary tuberculosis were encouraging but inconclusive. At that time no controlled trial of streptomycin in pulmonary tuberculosis had been undertaken in the United States. The committee of the Medical Research Council decided then that apart from trials in miliary and meningeal tuberculosis, a part of the small supply of streptomycin available would be best employed in a rigorously planned investigation with concurrent controls. This decision was taken because past experience had shown the extreme difficulty of evaluating the effect of a drug in pulmonary tuberculosis, the natural course of this disease being so variable and unpredictable that evidence of improvement following the use of a new drug in a few cases cannot be accepted as proof of the effect of that drug.

On only one occasion in the past had a fully controlled investigation of a drug in pulmonary tuberculosis been undertaken; the difficulties of planning and conducting such a trial therefore merit study. As the numbers of patients to be available for the trial would not be very large, it was necessary that all those who would be chosen should have a similar type of disease. For various reasons the type of case was defined as follows: acute progressive bilateral pulmonary tuberculosis of presumably recent origin, bacteriologically proved, unsuitable for collapse therapy, age group from 15-30. The selection of this type of disease constituted full justification for having a parallel series of patients treated only by bed rest, since up to the present this would be considered the only suitable form of treatment for such cases.

Suitable Cases

Seven hospitals co-operated in the trial. Patients were recruited from the areas around these hospitals, by approach to the tuberculosis officers and medical staffs of hospitals in the area, explaining the nature of the scheme and asking for possibly suitable cases to be submitted. When cases were submitted the clinical particulars and x-ray films were considered by the committee's selection panel. Patients accepted were given complete priority of admission to the designated centers. Determination of whether a patient would be treated by streptomycin and bed rest (S case) or by bed rest alone (C case) was made by reference to a statistical series. Patients were not told before admission that they were to get special treatment. C patients did not know throughout their stay in hospital that they were controlled patients in a special study; they were, in fact, treated as they had been in the past.

* Former Medical Officer for U.N.R.R.A. in Italy and Poland. Prophit Scholar at Britain's Royal College of Physicians where he carried out a survey of the effect of Tuberculosis among nurses. At present on the scientific staff of Britain's Medical Research Council in charge of the trials of Streptomycin in cases of Tuberculosis, Meningitis and Pulmonary Tuberculosis.

Each patient was to remain in bed at the centers for at least six months, and the results were to be assessed on the clinical status at the end of six months. All S patients were given streptomycin by the intramuscular routine. The dose was two grams per day, given in four injections at six-hourly intervals. The original intention was to continue streptomycin treatment for six months. However, reports from observers in the United States indicated that the maximum effect of streptomycin was reached within the first few months, and it was therefore decided to treat patients for four months only, but to continue observation to the end of six months from admission as for C patients.

Clinical observations were entered on standard record forms designed for the trial, and the analysis of results at the end of the trial was made from these records. X-ray changes were assessed by a panel of three radiologists, each reading the films independently and not knowing if the films were of C or S cases. There was fair agreement among the three; at a final session they met to review and discuss films on which there had been a difference in interpretation, and agreement was reached without difficulty on all films.

By March, 1948, observation had been completed for 107 patients, of whom 55 had been allocated to the streptomycin group and 52 to the control group. The results of this trial were reported in the *British Medical Journal*, October 30, 1948.

The main results at the end of six months are as follows: four of the 55 S patients (seven per cent) and 14 of the 52 C patients (27 per cent) died before the end of six months. Assessment of radiological appearance at six months as compared with appearance on admission showed improvement in 69 per cent of S patients and in 33 per cent of C patients. The improvement was considerable in 51 per cent of S patients and eight per cent of C patients. In two of the four C patients who showed considerable improvement, this improvement followed induction of collapse therapy. There is no doubt of the remarkable difference between the two groups, a difference which can be definitely attributed to streptomycin therapy. Apart from those who died, deterioration was seen in 18 per cent of S cases and 34 per cent of C cases.

The main difference between the S and C series is among the patients clinically acutely ill on admission; thus among patients having on admission evening temperatures of 101 degrees Fahrenheit or over, eight of 24 S patients and none of 19 C patients showed considerable improvement radiologically.

Among the treated patients radiological improvement occurred most often in those who, though having extensive infection, did not have large or multiple cavitation. Nevertheless in one-third of those with gross cavitation considerable improvement also occurred, principally by resolution of recent infiltrative spread; some cases thus became suitable for collapse therapy. Streptomycin therapy alone did not lead to closure of large cavities.

Major Advantage

The need of a control group in trials of a new drug for pulmonary tuberculosis is underlined by the finding that impressive clinical improvement was seen in some of the patients treated by bed-rest alone: 12 gained more than 14 pounds in weight, and in 13 of 47 febrile patients the temperature was within normal limits at the end of six months. It was to be expected that in many of these patients with gross lesions who until recently had been at work the constitutional symptoms would be temporarily improved by bed-rest, although the lesions were so advanced that bed-rest alone could not be expected to effect corresponding improvement in the radiological picture. Nevertheless it should be noted that some radiological improvement was recorded in one-third of the C patients. The improvement in these patients was mainly among those least acutely ill on admission, and it is in this group that the treated series shows the least advantage over the control series. The major advantage is among the acutely ill patients.

—Concluded on page 298

SPECIAL ARTICLE

Essential Hypertension

A summarization of this important subject is repeated because of numerous requests from our readers. Many additions have been made and the latest therapeutic information incorporated. It is designed as a time-saving refresher for the busy practitioner.

Reprints available*

Hypertension is one of the major unsolved problems of medicine. Statistical studies have confirmed estimates that approximately twenty-five cent of all deaths of persons past 50 years of age are caused by hypertension.[1] It may occur at any age but is most frequently found in persons over 40 years of age. Occasionally it occurs in children and more commonly in young adults. Some have reported that 25 per cent of all deaths of individuals between the ages of 35 and 44 are caused by essential hypertension. Approximately half of the population in the sixth decade of life have this condition to some degree.

Definition

Essential hypertension is defined as a morbid state in which fluctuating systolic and disastolic arterial hypertension occurs.[2] It is most commonly observed in middle or old age but is believed to begin much earlier, being unrecognized for some years due to its insidious and asymptomatic onset.

Classification

The etiology of essential or primary hypertension is uncertain and therefore it is impossible to classify it on this basis. Some attempt has been made to classify it according to severity and course. There is naturally a great deal of variation and it is not always possible to place a patient into one narrow group. The most useful method of grading now widely employed is the following:[3]

Group 1. This type can be of long duration without causing symptoms and without impairing general health. The majority of cases usually fall into this group. Changes in the retinal vessels are minimal, consisting of mild narrowing or mild sclerosis of the arterioles. Cardiac and renal functions continue to be adequate and blood pressure is not excessively high and falls during rest and sleep to normal in many patients. There may be a slight albuminuria or none at all. Although there is a gradual development of hypertrophy of the heart electrocardiologic examinations may give evidence of normal findings for many years. The prognosis is usually good.

Group 2. Patients in this group have a higher and more sustained hypertension than those of group 1. Although retinitis is not present, there are more marked changes in the retinal vessels. General health is good, cardiac and renal functions are satisfactory but the disease is more progressive. The arterioles of muscles show changes more frequently.

Group 3. In this group the hypertension is often high and sustained and on palpation, diffuse changes in the arteries usually can be demonstrated such as thickened and rubber-like radial, brachial, superficial temporal, posterior tibial and dorsalis pedis arteries. Although cardiac and renal functions may be adequate, there may be minor alterations in functions as indicated by dyspnea on exertion, characteristic changes in the electrocardiogram and noc-

* From the Editorial Research Department of the MEDICAL TIMES, 67 Wall Street, New York 5, N. Y. Permanent library binders, sufficient to hold 24 different "refresher" reprints, sent postpaid $2.50.

turia. Nervousness, headache and vertigo may occur. Albuminuria and microscopic hematuria may be present. An important characteristic is the presence of angiospastic retinitis accompanied by definite sclerotic changes in the arterioles but no edema of the disks. Changes in the arterioles of the muscles are more numerous and marked than in group 2. Even in group 3 cases there may be a remission in activity of the pathologic process. The patient feels better and stronger and the headaches or vertigo may disappear. Examination of the retina shows evidence of previously active retinitis and many of the small arterioles may be obliterated.

Group 4. Patients in this group are in very serious condition. The characteristic symptoms include headache, nervousness, asthenia, loss of weight, visual disturbances, dyspnea on exertion and nocturia. There may be obvious neurologic lesions. Objective findings include a persistently elevated blood pressure, palpable diffuse arterial thickening of the peripheral arteries and retinal changes such as edema of the disk. There is also marked spastic and organic narrowing of the arterioles with diffuse retinitis. Albuminuria, cylindruria, and hematuria are usually present. Cardiac and renal functions may be adequate but eventually they become impaired. Associated with the terminal picture there may be failure of the functions of the brain, heart and kidneys simultaneously which suggests widespread anoxemia due to decreasing arteriolar blood supply. The prognosis is very serious.

In a study of a large number of cases this grading scheme was found to give some ideas of prognosis. Three years after the first examination, 20 per cent of group 1 patients, 36 per cent of group 2, 75 per cent of group 3 and 94 per cent of group 4 were dead. Later studies have shown that the mortality rate in four years in group 1 is 30 per cent; in group 2, 42 per cent; in group 3, 78 per cent; and in group 4, 98 per cent.[3a]

Symptoms

Hypertension may occur with or without symptoms. When symptoms are absent it is thought that the vascular tree has adjusted itself to allow for the injury whereas when they are present either the vascular tree has lost its power of adjustment or there is an association of neurosis. In the course of examining the patient symptoms will develop as a result of suggestion from the questions asked by the physician. It is obvious that such symptoms can be absent since many cases of hypertension are discovered accidentally during medical examination for insurance or other purposes.

In the early stages of hypertension the symptoms noted, if present, are characteristic of a state of anxiety and usually are associated rather than resultant.[2] Increased nervous irritability may bring about cold extremities, pallor and dizziness. In the later stages arteriolar sclerosis develops and results in characteristic signs and symptoms.

Important to the individual case is the family history in respect to hypertension. Heredity has been shown to play an important role in essential hypertension. A survey has revealed that the incidence of this condition is only 3 per cent in children with both parents having normal blood pressure; 28 per cent in children with one parent having hypertension; and 45 per cent in children with two parents having hypertension.[3b] The resilience of the patient's vascular system can be estimated by learning the age of the relatives suffering from hypertension. If they have reached a ripe old age then their vascular systems must have been excellent and this offers some encouragement for the patient at hand.

Essential hypertension is found approximately five times more frequently in the family history of patients with hypertension or those who react to a considerable degree to any standard stimulus such as immersion of the hand in ice water than it is in those without hypertension or who react in the normal way to the test. This is explained by the theory that a sensitive and hyperreactive sympathetic nervous system has an abnormal response producing unusual vasoconstriction which is the result of certain emotional reactions. This is

considered by some to be the cause for neurogenic hypertension.[3c]

Headache is the most common symptom encountered. Frequently it starts in the morning and disappears before midmorning or noon and may be located in the occipital region although this is not always the case. The headache may occur daily or at intervals no more frequent than headaches in normal individuals. It may simply be a stiffness and tightness of the neck or an excruciating pain. Since the height of the blood pressure and the severity of the headache do not parallel each other it is thought by some that the headache may be associated with an underlying psychoneurosis rather than with the hypertension. There is often a feeling of constriction in the scalp, particularly over the vertex, which is not often experienced by people with normal blood pressure. A very common complaint although not characteristic is that of fatigue occurring toward midafternoon even though the morning has been uneventful. Some patients, however, may appear to have unbounded energy and be able to continue beyond the duration of normal subjects.

The onset of hypertension may be noted in some individuals by the change in emotional tension. They may become irritable, intolerant, inconsiderate, unable to relax or to avoid controversy. There are exceptions to this as well, for hypertension has been discovered in patients showing no neurotic manifestations. Unfortunately in such cases the disease frequently advances to the stage of malignant hypertension before it is discovered. Then the heart, kidneys, fundi and blood pressure evaluation indicate the condition.

A recent comparative study of personality patterns of patients with high blood pressure, patients with psychoneurotic conditions and patients suffering with other chronic diseases showed that the former patients are not the explosive type as commonly thought but rather are retiring and mild. They show subnormal assertiveness and obsessive-compulsive traits.[3d]

Although the term "essential hypertension" has been applied to this condition for many years the term "renal hypertension"

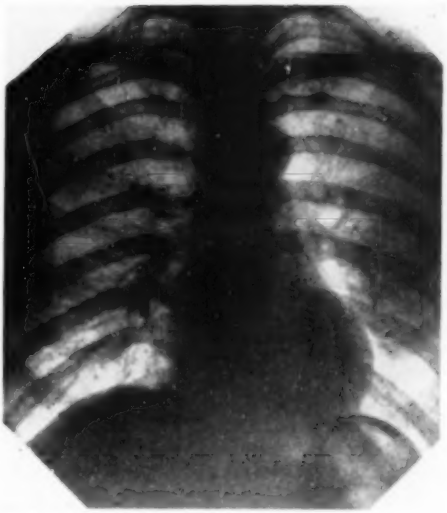


Fig. 1. Cardiac silhouette early in hypertensive heart disease, showing concentric hypertrophy of the left ventricle.

is again coming into use. There appears to be some possibility that hypertension may be due in many cases to unilateral renal disease. This has been substantiated by the fact that therapy directed toward this condition was successful and by the fact that hypertension is frequently associated with bilateral or unilateral pyelonephritis, acute and chronic glomerulonephritis, polycystic disease of the kidney, kidney tumors, prostatic or other obstruction to the urinary flow, renal amyloid disease, periarteritis nodosa of renal arteries, partial or complete renal artery occlusion due to embolism or arteriosclerotic narrowing. Other conditions often associated with hypertension include certain endocrine disorders such as ovarian and thyroid disease and the Cushing syndrome, polycythemia, coarctation of the aorta and increased intracranial pressure. In these conditions there may or may not be involvement of the kidneys.

No matter what the basic cause of hypertension may be, as the condition progresses the heart and blood vessels are affected. The heart hypertrophies and loses compensation. The left ventricle is the first to

hypertrophy due to increased thickness of the individual muscle fiber. This in turn causes a deficiency in the oxygen supply to the thickened muscle mass. As the oxygen supply to the heart muscle is decreased not only does the left ventricle have to handle the increase in high blood pressure but there also is a myocardial handicap developed. This results in dilatation of the left ventricle. When this has reached a certain degree the left auricle also becomes hypertrophied and dilated. Although the right side of the heart is generally not affected to any great degree similar changes may occur if the hypertension persists for a long period of time or if the left ventricle has failed. It has been stated that 60 percent of essential hypertension patients die of heart failure brought on by hypertrophy and dilatation resulting from mechanical overloading or due to coronary sclerosis and myocardial degeneration.[4]

The first symptoms of which the patient may complain are the cardiac signs which include heart consciousness, particularly when the patient is recumbent, palpitation, and need for several pillows in order to sleep. After several months or years of these symptoms those of failure of the left side of the heart finally appear and include dyspnea, cough or cardiac asthma.

Failure of the right ventricle follows as decompensation progresses and is evidenced by engorgement of the liver with tenderness in that area, edema of the extremities and transudations into the serous cavities.[4]

There may be vague sensations of oppression in the chest and mild precordial pain such as in angina pectoris.

There also may be symptoms of angina pectoris or of coronary thrombosis which may not be related to those of congestive heart failure or they may accompany the condition. As stated previously, however, essential hypertension in a majority of cases results in heart failure.[4]

Palpitation in the early stages usually occurs in those patients having psychoneurotic backgrounds[2] or may result from cardiac arrythmia.

In addition to the involvement of the nervous system as evidenced by headache and irritability there also may be vertigo, tinnitus, insommia, fatigue, weakness and other more minor complaints. The syndrome of hypertensive encephalopathy, which resembles to some degree an epileptic seizure, may appear.

Presence of hypertensive encephalopathy or cerebral vascular spasm is generally indicated by certain symptoms (the focus is in the cerebral area) which occur suddenly and rapidly and include aphasia, syncope, monoplegia or hemiplegia, paresthesia, amaurosis, drowziness, convulsions or coma but no ezotemia.

Prodromes such as severe and almost constant headache, nausea, vomiting and somnolence may be present. A few days before the attack loss of appetite and disturbed sleep as well as changes in personality such as irritability may be observed. The arterial pressure frequently rises to great heights and urinary volume falls. Although the pulse is usually slow the severe hypertensive patient may have a ruddy complexion, a deceptive symptom in the very ill patient. Thrombosis and hemorrhage occur late in the course of the disease although there may be small thrombi in portions of the brain before any extensive damage is observed. This may account for certain symptoms such as tingling and numbness of the fingers and hands and incomplete palsies. It is necessary that such symptoms be considered for they are the forerunners of apoplexy.

Coronary thrombosis and death in patients with hypertension are generally brought about as a result of arteriosclerosis which always develops in hypertensives of long standing. Hypertension is often accompanied by cerebral arteriosclerosis which may cause thrombosis or hemorrhage. The changes in the blood vessels usually develop gradually beginning in the arterioles as shown by the development of hyaline degeneration (with or without fat), hyperplasia of internal elastic membrane, growth of the intima connective tissue and muscularis atrophy. As the condition progresses to the larger vessels the muscular layers hypertrophy. Arteriosclerosis is generally observed more often in the visceral vessels rather than those in the extremities. Approximately 20 per cent of the deaths of

hypertensive patients are due to cerebral thromboses or hemorrhages.

Occasionally there may be thrombosis of one retinal artery which will bring about a disturbance of the vision in the area nourished by that vessel.

Although the kidney may play a role in causing the condition the symptoms are not predominant. There generally is nocturia and in cases of long standing this may be accompanied by polyuria indicating that there is nephrosclerosis and impaired function of the kidney. This is commonly found in the malignant syndrome.

Phases

There are various phases of essential hypertension and these have been classified as follows:[2]

A. Prehypertension
B. Neurogenic hypertension
C. Established essential hypertension
   1. Vascular adaptation fully maintained
   2. Vascular adaptation failing
      Progress
         Rapid (severe essential hypertension)
         Slow (mild or benign essential hypertension)
         Major site
            a) Cardiac
            b) Cerebral
            c) Renal
            d) Other
D. Malignant hypertension (malignant syndrome)

The range of arterial pressure in normal men and women is considered by some authorities to vary from 90 to 120 mm. Hg systolic and 60 to 80 mm. Hg diastolic whereas others believe that 110 to 140 systolic and 70 to 90 diastolic are more normal figures. Some believe that arterial pressure rises as people grow older whereas others believe that the maximum is reached at adolescence with very little variation for the remainder of the life of the patient.

Elevated blood pressure does not always mean that the condition is due to hypertension but it may be caused by any number of diseases which are far more easily understood and treated than is hypertension. It is necessary for the physician to consider the wide variety of causes of hypertension. Coarctation of the aorta, infarcted kidneys, pyelonephritis and related conditions are not commonly found but the patient should be thoroughly examined for them. As previously stated, because the disease is so insidious and free of outward symptoms in its onset many people do not visit the physician or if they do frequently fail to follow his instructions. The physical changes in the early stages of the disease are so slight as to be almost unnoticeable. There may be a slight constriction of the arterioles in the eyegrounds. Early diagnosis is based chiefly upon the observation of a fluctuating elevated diastolic and systolic arterial pressure which continues even after all possible variations in measurement and all other possible causes for the condition itself have been eliminated.[2]

Diagnosis

Although the renal function may show no impairment for many years examination of the urine may reveal a lowered specific gravity (—1.010), polyuria to the extent of 2 to 3 liters a day, decreased phenolsulfonephthalein excretion (P.S.P.), urea clearance 20 per cent of normal, albuminuria, slight hematuria and anemia.[42]

The physical signs which are observed in diagnosing hypertension are: (a) Various degrees of arterial tortuosity, narrowing of the lumina of the vessels, arteries crossing veins give nicked appearance to vessels when observed with the ophthalmoscope (papilledema, hemorrhage and retinal and choroidal lesions may be observed in cases of longer standing); (b) the pulse generally is hard and the peripheral vessels thickened and elongated; (c) hypertrophy of the left ventricle gives the heart a boot-shaped appearance when x-rayed; (d) retromanubrial dullness is increased; (e) there is a diastolic shock over the aortic area and the pitch of the aortic second sound is increased and accentuated; (f) an audible gallop sound develops; (g) an electrocardiogram shows a deviation of the left axis with an inversion of the T

wave in lead 1; (h) patient is breathless following less exertion than previously, showing a decreased exercise tolerance because of the added strain on the heart; (i) less effort is necessary to bring on dyspnea as the cardiac reserve decreases; (j) the electrographic strain pattern and audible gallop sound are usually followed by manifestations of chronic congestive failure such as basal râles, slight cyanosis, edema of the legs and an enlarged liver. In some cases, however, acute paroxysmal dyspnea generally at night or acute pulmonary edema may be the first stages in severe failure.

Although the blood pressure generally rises moderately it differs frequently in patients. Some may show a comparatively fixed increase in blood pressure whereas others show considerable variance. The latter patients while asleep may show a fall in pressure as much as 100 mm. Hg systolic below the usual systolic level while awake or excited. A systolic pressure above 140 mm. Hg is considered abnormal.[4,4a]

Some patients will have an elevated blood pressure for 15 to 20 years or more but have very few other signs of hypertension whereas others may show severe signs such as arteriosclerosis, coronary disease, eyeground changes and others and death results in 2 or 3 years as result of cerebral hemorrhage, heart failure or even uremia. Development of myocardial infarction may restore a long-standing high degree of blood pressure to a fairly permanent normal level.[4,4a]

Differentiation

One of the greatest difficulties in examining patients with suspected hypertension is the differentiation between those with the so-called transient hypertension developed as a result of emotional stimuli and unlikely to lead to essential or nephritic hypertension. This is extremely important to the patient for once the diagnosis has been established he can no longer obtain insurance and frequently he may be afraid to work or the employer may hesitate to retain him.

Page[2] has suggested a tentative classification of the early stages of hypertension to aid in this differential diagnosis as follows:

1. Simple vasomotor lability in which the characteristic clinical and laboratory picture of essential hypertension is not observed and may not necessarily develop. In this stage the blood pressure, particularly the systolic phase, is irregularly and transiently elevated and accompanied by an increased heart rate and frequently some obvious emotional stimulus.

2. Prehypertension in which the patient responds as in 1 and probably will develop hypertension.

3. Neurogenic hypertension. In this group the patients show signs and symptoms of nervous hyperactivity and early hypertension is established.

4. Early essential hypertension in which cases the hypertension is established on a humoral basis usually and with early arteriolar disease.

Clinical Course

There are two types of hypertension which have been called benign and ma-

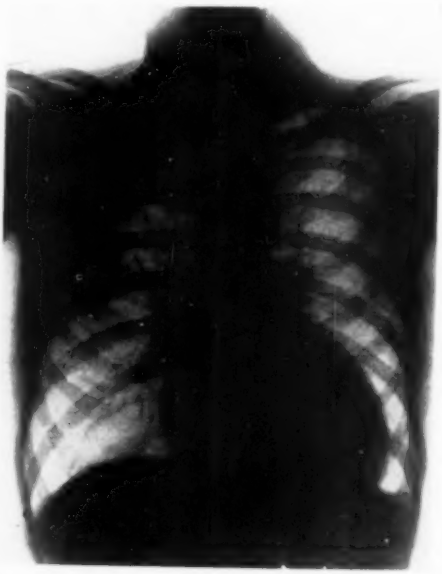


Fig. 2. Cardiac silhouette in advanced hypertensive heart disease.

lignant hypertension respectively. The latter type of hypertension has a typical clinical picture. The cause or mechanism of this syndrome is not definitely known. It is thought not to be a disease distinct from essential hypertension but rather a syndrome which is an end stage or which accompanies a number of diseases in which hypertension is concurrent. It commonly occurs in those patients who have suffered from essential hypertension for some time although this may not be always the case for it may be found in patients who have had no previous symptoms of essential hypertension. It is generally considered to be a result of intensification of hypertension for which the cause is not known.

Malignant Syndrome

Malignant hypertension is most commonly found in men in early or middle life. It is less common in women and seldom occurs in old age. In those patients with hypertension the onset of malignancy is difficult to predict. The symptoms as described in group 4 of the grading scheme are usually those occurring early in the malignant syndrome. Blurred vision is particularly important. Examination of the eyegrounds will generally show early papilledema, fresh hemorrhages, arteriolar constriction and an exudate. Most authorities concur on the fact that papilledema is the chief characteristic and that the malignant syndrome is not present without it. There are exceptions to this rule, of course, but its absence increases the difficulty of diagnosis. In some cases increased intracranial pressure is also present and is believed to be at least partially responsible for papilledema although either one has been found to occur without the other.

There may be moderate enlargement of the heart and tachycardia which maintains cardiac output without hypertrophy so that left axis deviation may not occur. Symptoms of cardiac strain appear as the disease progresses. Edema of the ankles, dyspnea and pain in the precordium occur. Electrocardiograms usually show a flattening or inversion of the T waves in leads I and II accompanied by left axis deviation.



Fig. 3. Cardiac silhouette in hypertensive heart disease during congestive failure.

A study of kidney function based on urea clearance or ability to concentrate the urine may give evidence that it is normal or slightly reduced in the beginning or it may be comparable to the condition observed during the state of essential hypertension. Shortly, however, the function begins to fail with precipitate falls taking place as well as bursts of gross hematuria, an increase in protein excretion, and an inability to concentrate the urine.

A test for specific gravity of the urine shows that at the point at which renal cells no longer concentrate the urine, the maximum value is 1.010. As the disease progresses the kidneys are no longer able to concentrate the urine and the specific gravity becomes fixed and the urine isotonic. This test is of value, therefore, in estimating renal function so long as renal failure has not begun. In some cases of hypertension a study of the crystalline deposits in urine is useful. Addis has developed a quantitative method for this in

which the urine is collected during a timed period of fluid restriction and the output of the protein and number of formed elements are then determined.

There may be periods of transient paralysis or aphasia and bizzare psychologic changes occur probably caused by minute thrombi in the vessels of the brain and their sequelae in associated areas of focal necrosis.

The heart failure is intensified as the end is approached and it may enlarge rapidly as a result of dilatation. The associated kidney failure also accelerates and oliguria or anuria may be observed alternately with polyuria. Failure of renal clearance and blood flow results in a decrease of urea excretion which is accompanied by an increase in blood urea and nonprotein nitrogen. Vision may be partially or completely destroyed. Nausea, vomiting, anorexia and convulsion frequently occur followed by an alarming loss of weight.

Blood Picture

The blood picture shows a rapidly developing anemia and a terminal reduction of plasma proteins to 4.8 to 5.5 Gm. per 100 cc. Urea nitrogen content of the blood is high and urea clearance considerably depressed. Usually observed also are a marked proteinuria and macroscopic hematuria.

Sleepiness overtakes the patient. Some patients may die in uremia, others of cardiac failure and some few of cerebral hemorrhage. Since the course is so rapid it is difficult to determine which condition finally brings on death.

Differentiation

It is necessary also to differentiate malignant hypertension from renal failure and terminal glomerulonephritis. Patients with Bright's disease do not die so quickly as do those with malignant hypertension. Symptoms of heart failure appear less frequently and much later in the course of Bright's disease. The heart enlarges more slowly and the cardiac shadow is more globular or characteristic of dilatation rather than enlargement as shown by the left ventricle in the malignant syndrome. Left axis deviation and T wave and S-T segment changes are more common in the latter, showing evidence of myocardial damage. Nephritic patients are capable of tolerating a greater degree of renal excretory loss since myocardial damage is not so severe. When renal failure accompanies malignant hypertension intraglomerular hydrostatic pressure is above normal, arteriolar constriction and afferent arteriolar sclerosis take place and result in a decrease in the flow of blood through the intact tubular tissue. In some cases this constriction may be so great that the greatly increased arterial pressure and constriction of the glomerular efferent arterioles may not show effect and the intraglomerular hydrostatic pressure appears normal or below normal. Hypoproteinemia occurs in such cases as it does in those with glomerulonephritis. Low rates of glomerular filtration and tubular secretory capacity and a higher rate of proteinuria characterize terminal glomerulonephritis. The renal function changes follow the structural changes in the kidneys. Survival of patients with the low level of renal excretory function is usually four times as long as those with renal failure associated with malignant hypertension. The history of the patient is of great importance since the course of Bright's disease is so characteristic.[2]

Menopausal Hypertension

Hypertension has been found to occur frequently during the menopause. However, study of this condition has shown that loss of ovarian secretions is not the etiologic factor but rather that the condition is one of true essential hypertension. It is likely that the emotional upset of the menopause accentuates the condition. In such conditions estrogens, in some cases supplemented with thyroid, have been found to restore control of the emotions with a subsequent reduction of arterial pressure. In some this pressure may never fall despite all treatment until the menopause has run its course.

Research on Etiology

Although research has been slow in discovering the causes of hypertension progress has been steady and some progress also has been made in developing effective methods of therapy.

Most patients with elevation of blood pressure have developed increased resistance to flow of blood through the numerous fine blood vessels distributed everywhere in the body. They apparently do not have an increase in the amount of blood pumped from the heart, an increase in thickness or viscosity of this blood, or an increase of total amount or volume. Microscopic studies of portions of these vessels obtained from patients in early stages of this disease usually indicate that thickening or hardening has not occurred. This evidently develops later probably as a result of hypertension. Nevertheless, many metabolic studies are directed toward possible dietary measures to minimize or prevent this cause or complication of hypertension.

It has been shown that overwork, worry, anxiety, and similar tension states may cause the sympathetic nerves throughout the body to constrict or narrow these small vessels and thus increase resistance and elevate blood pressure. Rest and sedatives, long standard forms of treatment of hypertension, are now occasionally supplemented by operations which partially or largely remove these nerves. New drugs are being studied in an effort to duplicate results of sympathectomy by medical means.

Thorough and extensive studies have shown that an enzyme may, under certain conditions which cause a lack of oxygen to the kidney, produce a substance which is distributed by the blood stream and which acts directly upon these small vessels to reduce their size. Substances capable of neutralizing this action are being sought in extracts of body tissues. Body endocrines or hormones are believed by others to occur in excess as a result of functional or nervous influences, stress or reaction to alarm. It is thought that nervous pathways starting in the frontal lobes of the brain may stimulate the anterior lobe of the small pituitary gland located at the base of the brain. This gland may then liberate a hormone which travels through the blood stream to the cortex of the adrenal gland. The adrenal gland might then liberate a second hormone which may cause the kidney to produce its enzyme. Thus it is possible that two or three substances capable of constricting small vessels and increasing blood pressure may be produced.

Instances of reduction of blood pressure following operations upon the frontal lobes are also reported. Development of drugs acting upon these lobes, the whole brain, or nerve centers at the base of the brain is receiving increased attention.[4b]

Therapy

It is extremely important that essential hypertension be treated early in its course. Therapy should not be delayed until the blood pressure shows a decided elevation and fixed point and the patient is incapacitated. Because the condition results in damage to so many tissues of the body it is urgent that it be treated before the damage is irreparable. Attention has been called to the fact that children can be hyperreactive and that medical school students, to the extent of 20 per cent of the total, show evidences of arteriosclerosis. One authority has classified treatment into three types: expectant, physiologic and palliative. Early detection and institution of a proper program for hyperreactors or individuals in the early stages of hypertension are included under expectant treatment.[4b]

Psychosomatic Therapy

A great deal is written today about psychosomatic medicine and the influence of the mind on the well-being of the body. Mental disturbances have been shown to play a part in hypertension as well. They can be considered as part of the cause or as an accompanying complication. Emotional disturbances may also be a result of the disease. From studies which have been conducted evidence has been collected to show that in a large proportion of essential hypertension cases mental processes along with certain unknown neurohumoral agents bring on the condition and, once established, influence its progress.

The physician can learn much from the

patient's life history which should be carefully searched for signs of stress resulting from insecurity or intellectual and emotional conflicts. It is necessary also for the physician to use tact and wisdom in explaining the condition to the patient for the patient's intellectual approach to the disease is most important. Of course psychotherapy must be considered only as a supplement to other therapy.

It is not necessary and often harmful to have the patient stop work and rest completely. It is far more advisable to prescribe a regular schedule of work and rest such as a half-hour of rest before each meal and retirement at 10 P.M. The periods of rest need not be sleep periods but rather periods of relaxation in a recumbent position with no interruptions. Play should be considered a surcease and solace from work and may take many forms such as a hobby, some mild exercise, or participation in some social or community effort but it should not be too competitive and it should not be play in the line of business.

Included in the physiologic therapy are diet and administration of certain drugs.[4c]

Diet Therapy

Several types of diets have been employed in the therapy of hypertension. The first type is that of low protein content with emphasis on the restriction of red meat and a second type is the salt-free diet. In both cases it is thought that such diets serve more by limiting the intake of food than by their actual content. Everyone has a tendency to consume greater quantities of beef than of chicken or fish and a salt-free diet is definitely unpalatable. It is possible that protein restriction limits the possibility of its action in increasing arterial tension. It is necessary, however, to restrict the protein with great care so as not to result in hypoproteinemia. In those cases where congestive heart failure is a possibility edema may be hastened by the mutual action of the hypoproteinemia and water retention.

In some cases patients may be in a state of hyperadrenocorticalism and arterial pressure as well as cerebral symptoms may be increased by salt in the diet. However, there is some controversy over the use of salt-free diet in patients with essential hypertension. The action is believed to be indirect rather than direct.

In beginning a regimen of sodium depletion in cases of chronic hypertension accompanied by vascular damage the patient's symptoms and the blood urea level must be watched carefully. In those cases where the physician wishes to prescribe a salt-free diet but also desires to make the food as palatable as possible to the patient he may recommend the use of certain proprietary products which are used as salt substitutes.

Recently a group of authorities agreed that the low salt diet was effective only in those patients having a mild form of the condition. Experiments have shown that patients, who were given a low salt and low protein diet for 90 days, showed no significant changes in the blood pressure level.[4d] Another study of hypertensive patients given a low salt diet revealed that only one-third of 25 patients responded significantly and the majority of these had a mild form of the disease.[3d]

Still another study has shown that less than 20 per cent of patients respond to a low sodium diet. It is suggested that it is possible that the response might be greater if the diet is adhered to for years instead of months. Also it is extremely difficult to restrict sodium intake in ambulatory patients. This same study recommends that the low protein diet should be restudied because it is thought that it may have been discarded too quickly and that certain amino-acid deficiencies resulting from low protein diets might have greater specific effect on the blood pressure than would a general low protein intake.[4e]

Some workers have felt that a rice diet provided some advantages but the available evidence is not conclusive as to whether such a diet is superior to one which includes wheat, barley, oats or buckwheat. Because the rice diet is so monotonous it is difficult to keep patients on it. However, those patients who have continued it have shown improvement and in some instances the results are startling. It is not definitely known by what mechanism the

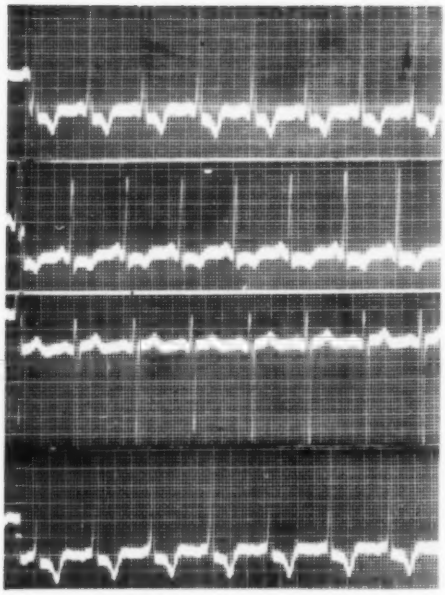


Fig. 4. Electrocardiographic changes observed in patients with hypertensive heart disease.

fall in blood pressure and relief of symptoms are brought about and some believe they may be due entirely to the low sodium diet. However, physiological studies have demonstrated that the kidneys of the average hypertensive patient handle sodium normally, and no retention of sodium occurs in hypertension unless there is associated congestive heart failure. Thus the rice diet is still considered in the experimental stages rather than as established procedure.[4e,5,5a,5b]

Another highly controversial diet is the low cholesterol diet. It is believed that the ingestion of cholesterol results in the deposition of this substance in the blood vessels. However, there are many variable opinions on the subject. One authority believes that there is insufficient evidence at present to justify the omission of cholesterol foods from the diet unless there is manifest hyperlipemia.[4e]

Fig. 1, 2, 3 & 4 through courtesy of Commonwealth Fund, Inc. "Hypertension and Hypertensive Disease" by Goldring & Chasis.

Weight

As the weight increases the arterial pressure may also increase. However, it is not considered as a cause of hypertension but rather as an irritating factor due to the fact that it increases the work of the heart and circulation. The patient should be instructed to maintain his body weight at the ideal level as indicated in the standard tables unless the physician feels that some modification one way or the other would be better suited. The low calorie diet is generally recognized as a successful means of therapy. This was further proven by the fact that the blood pressure of people in European concentration camps who underwent deprivation and starvation was considerably lowered and when these people were restored to normal diets the blood pressure began to increase. This was also true of most of the population of Europe.[4e]

Thyroid extract may be used in some cases of women who are also going through the menopause but generally it should not be freely used. In some cases where there is a suggestion of hypothyreidism thyroid extract may be given in small doses over a long period of time. Fluid intake restriction in obesity is not thought to be advisable. Amphetamine is employed in obese cases but in the case of obesity with essential hypertension it is thought that it may have too great a pressor and cerebral stimulation.[2]

Alcohol

Alcohol in moderation is not thought to exert any great effect although in some patients it has been found to relieve the tension and cause a sense of well-being. For this reason a glass of sherry before dinner or a hot toddy before going to bed may be prescribed. However, if the patient has any fears concerning alcohol or the tendency to imbibe it to excess it is better to avoid its use.

Tobacco

In most cases of hypertension smoking is contraindicated since nicotine possesses a vasoconstrictor action and causes tachycardia and an elevation of the blood pressure.

Although, in some cases, psychic tension may be relieved by limited smoking, potential hypertension patients should be cautioned against excessive smoking.[4b]

Coffee and Tea

Use of coffee and tea, like alcohol and tobacco, must be based upon the individual patient. Excess of coffee and tea in some patients will result in tachycardia, tremor, sweating and light headedness as a result of the caffeine content. Caffeine does provide a transient vasodilation but it cannot be used therapeutically due to its cerebral action.

Insomnia

Insomia in hypertension patients usually occurs as a result of anxiety rather than of the disease. The ideal therapy is to relieve the anxiety but this is not always possible. Sedative drugs may be necessary and when this is the case the proper one should be carefully chosen. A quick-acting barbiturate is useful in those patients having trouble in getting to sleep and if administered in enteric-coated form will be helpful to those who wake up too early in the morning. The latter condition also may be treated with phenobarbital or 5-isoamyl-5-ethylbarbituric acid, long-acting barbiturate, in doses of ¾ to 1½ gr. one hour before going to bed. It may be necessary to administer sedative doses (1/3 to 1/5 of the dose necessary to induce sleep) during the day if the tension persists.[6] In some cases the full dose may be given once or twice during the day.[2] The dosage given should be sufficient to abolish restlessness and nervousness but insufficient to cause drowsiness and to retard mental reactions.[4b] Chloral hydrate in doses of 5 to 15 gr. has been found advantageous in some patients. Its action is rapid and it may be given in simple solution or in a mixture such as the following:

Syr. Hydriodic Acid	0.48
Potassium Bromide	16.00
Chloral Hydrate	32.00
Mucilage of Acacia	60.00
Syrup of Orange	120.00
Distilled Water q.s. ad	240.00

This mixture is given in doses of 4 cc., 1 to 3 times a day.[2] Chloral hydrate in the larger dose and particularly in combination with the bromide will probably cause drowziness.

Insomnia is common in women with hypertension who are going through the menopause. It is usually due to an underlying neurosis. Relief is obtained by administration of an estrogen. If necessary a long-acting barbiturate in small doses also may be given.

Bromides serve to lessen anxiety and worry and to quiet the patient. Due to the fact that they are slow-acting and that a concentration necessary to induce sleep cannot be achieved with one dose they are used primarily for prolonged sedation.

Because hypertension is such a widespread disease with an indefinite etiology many drugs have been tried for their value in its therapy. Some have even tried extracts of mistletoe, watermelon seed and garlic and are recommending these.

Nitrite Therapy

The nitrites also have been used to lower blood pressure but this treatment is purely symptomatic and without any alteration in the underlying pathology. The patient may even feel worse with the lowered blood pressure. Treatment with nitrites is indicated if the patient is examined early in the course of the disease, if there is a labile blood pressure, if there is danger of a cerebral vascular accident or hypertensive encephalopathic episode or if symptomatic relief is marked. The long-acting vasodilators such as erythrityl tetranitrite (orally, 15-30 mg. 3 times daily), sodium nitrite (orally, 15-60 mg. every 4 hours), mannitol hexanitrate (orally, 15-30 mg. 3 times daily), and nitroglycerine (0.1 mg. p.r.n.) should be used. In order to avoid tolerance to the drug, periods of rest from the nitrites should be instituted. During these periods of rest sedatives may be used advantageously.

Sodium nitrite is sometimes employed in combination with phenobarbital and certain plant drugs such as *Veratrum viride*.

Bismuth subnitrate was introduced in 1930 as being of value in essential hyper-

tension in doses of 1 Gm. orally 3 times daily. Although the drug is converted slowly but continuously absorbed, clinical results have been somewhat disappointing. The nitrites are thought to be more advantageous.[7]

A summarization of the status and disadvantages of sodium nitrite and other nitrites and vasodilator therapy in general has been made by Weiss and Ellis.[8] In order for a vasodilator to satisfy the specifications necessary in the therapy of arterial hypertension it must have a constant, sustained action, should dilate the arterioles over all the constricted areas, should maintain the normal functions of the organs (especially heart and kidneys) and should not cause side-effects or unpleasant symptoms. Sodium nitrite is inconstant and transitory in its action and sometimes causes severe unpleasant symptoms and may depress renal activity. It may show some value in therapy of vascular crises but is of no value in routine daily therapy. In patients with renal insufficiency its use is irrational.

Acetylcholine Therapy

Both acetylcholine and acetyl-beta-methylcholine were thought to possess some possible benefit in the therapy of hypertension. However, clinical results have been discouraging. In fact acetyl-beta-methylcholine may cause untoward reactions in hypertensive patients.

Digitalis Therapy

Some have recommended digitalis as a prophylactic for the prevention of ultimate heart failure, particularly in elderly patients with hypertension or cardiac enlargement.[10] Although this field is promising sufficient clinical data are not available to determine the value of digitalis in such therapy. Best results are obtained with digitalis when heart failure occurs in hypertensive or arteriosclerotic hearts.[6]

Thiocyanate Therapy

The value of thiocyanate in the therapy of hypertension was recognized in 1903 but in the intervening years it was dropped and now has returned to use again. The thiocyanate ion acts in two ways: (a) causes cutaneous and mucosal phenomena characteristic of iodism; and (b) relaxes smooth muscles similarly to the nitrites.[6] The second action is responsible for its use in essential hypertension in that by its relaxation of smooth muscle it brings arteriolar vasodilation. It is also thought to reduce the basal metabolic rate.

There is a great deal of controversy over the use of thiocyanates in the therapy of hypertension. Unfortunately they are toxic and should not be used without careful supervision and control by means of blood-level determination.[11, 12] The serum level of thiocyanate which is considered safe is between 8 and 14 mg. per cent. Within this range there is a hypotensive action with mild toxic responses which become more severe above 15 mg. per cent.

The mild reactions observed in those patients with therapeutic concentrations in the serum include weakness, particularly of the arms and legs, fatigue, lethargy, aching and cramping in the calf muscles, and increased nervousness and irritability. Symptoms of iodism such as coryza and a toxic dermatitis which may develop into a maculo-papular itching and scaling eruption are also noted. The eruption may become severe and exfoliative. There may be fever, edema of the face and marked intoxication. Such symptoms may be noted during the first several weeks of treatment and may pass off even with continued administration of the drug. The dermatitis and eruptions usually clear up if the drug is withdrawn and may not recur when again administered. Libido may be decreased in the beginning but this does not persist. There may be mild gastrointestinal disturbances such as pyrosis, abdominal pain, vomiting and diarrhea.

Signs of toxic levels of thiocyanate are evidenced by nausea, vomiting, loss of appetite, slurring of speech in older patients followed by an unsteady gait, disorientation, hallucinations, mania and delirium. Exfoliative dermatitis is the most common skin manifestation whereas alopecia is not usually found. Painful peripheral neuritis may also develop. In those

patients with very excessive doses coma, convulsions and death take place. Anginal pain and cerebral thrombosis have been reported but it is not definite whether they are due to the medication or to the disease itself.

There is controversy over whether or not long periods of thiocyanate administration at safe levels cause toxic symptoms. In some cases anemia, emaciation, muscular wasting and constant fatigue develop but some believe this to be a result of the progressive nature of the disease.[12]

Thiocyanate also may induce diffuse benign enlargement of the thyroid gland. Symptoms of hypothyroidism also may appear and the basal matabolic rate is usually low. Low blood iodine values and increased urinary excretion of thyrotropic hormone in the inactivated form also have been found. Investigation has shown that formation of thyroid hormone by the thyroid gland is blocked by thiocyanate.[13]

Thus the lower concentration of active thyroid hormone in the blood stimulates the anterior pituitary which in turn produces an excess of thyrotropic hormone which in turn causes the goiter. As a result of the block, however, there is no increase in physiologically active thyroid hormone output.

Administration of thyroid in doses of 0.1 and 0.2 Gm. on alternate days will relieve the goiter even though thiocyanate therapy is continued. Thyroid substance is capable of by-passing the block. Small doses of iodide may be given along with thiocyanate therapy to relieve any iodine deficiency which would predispose to thiocyanate goiter.[2]

With proper care no toxic symptoms of severe nature should occur. Dehydration may cause an increase in concentration since the drug appears in the extracellular fluid. If toxic symptoms occur the drug should be discontinued and excretion hurried by giving orally large amounts of water and hypertonic saline intravenously.

The dosage of thiocyanate varies with the patient. It is usually given in the form of the potassium or sodium salt, 0.2 to 0.3 Gm. in two daily doses for a week when the serum level is determined and the dosage adjusted. This should be determined weekly until the proper level is found and then at intervals of 2 weeks, 4 weeks and finally 6 weeks. The maintenance dose ranges from 3 to 21 doses of 0.3 Gm. each week. The drug may be administered in flavored aqueous solution or in tablets. If the enteric-coated tablets are used the dose necessary may be greater than with the solution or plain tablets.[2] Some state that the average dose is 0.3 Gm. daily for 3 days and the maintenance dose 0.3 Gm. weekly to 1 Gm. daily.[6] The serum level will fluctuate from time to time thus making it necessary to continue the determination of the level at the intervals indicated.

Selection of cases for thiocyanate therapy is important. Some limit the cases to grades 1 or 2 or only when headache is severe and intractable. Others believe it should be used in all patients with no specific contraindications. The contraindications upon which most agree include 60 as the age level, severe cerebral or generalized arteriosclerosis, severe depression of cardiac and/or renal function, angina pectoris, the malignant syndrome, and pregnancy toxemia hypertensions. Thiocyanate appears to be of particular value in those patients with severe headache and pain brought on by anxiety and tension and in those whose diastolic pressure is high (115 mm. Hg or more) and showing no evidence of retinal arteriosclerosis.[2]

One authority recently stated that potassium thiocyanate has been proven to be effective both preoperatively and especially postoperatively but the dose must be carefully controlled.[4e]

Mercurial Diuretics

Mercurial diuretics have been found to greatly increase the loss of sodium through the urine. Water diuresis is preceded by sodium diuresis by 2 to 4 hours. By this method the daily sodium excretion may be increased 7 times whereas water excretion is only doubled. The loss of sodium may be hastened in patients with hypertension and in cases of heart failure with pulmonary congestion with peripheral edema

by administration of mercurial diuretics. This may be helpful also in permitting a more liberal diet.[13a] One dose of such a drug is sufficient to eliminate 4,000 mg. of sodium in patients without edema and 15,000 mg. in a week in those with edema. Since raw foods in the daily diet usually contain approximately 30 to 300 mg. of sodium per 100 calories and rice contains less than 8 mg. per 100 calories it is possible to compensate for the salt difference in the rice diet and one with a greater choice of unsalted foods by giving 2 injections weekly of a mercury compound. This also may be helpful to the individual who dines out occasionally.

If the blood urea level is normal, diet and mercurial therapy for three weeks is relatively safe. The therapy is continued until the desired effect is obtained or until undesirable symptoms appear. If there is no fall in pressure it is unlikely that dietary restrictions will aid the patient but if it does fall it is then necessary to prescribe a regimen which will maintain the sodium depletion.[5a] Fever or hot weather may necessitate less salt restriction. If renal impairment occurs it is necessary to restrict protein and in such cases rice has been shown to be more effective than wheat. Nitrogen equilibrium can only be attained with such a low intake of protein by means of rice.[13b]

Kidney Extract Therapy

The use of kidney extracts in the treatment of hypertension is still in the experimental stage. Results have shown some promise but have been very erratic and accompanied by anaphylactoid reactions. They have been shown to lower blood pressure.

Vitamin Therapy

Both vitamin A[14] and vitamin C[15] have been advocated in the treatment of hypertension as the result of encouraging reports in some cases. Vitamin A was given in doses of 100,000 to 2,000,000 units daily. It is claimed that arterial pressure was reduced and some of the symptoms were relieved but it is generally conceded that vitamin A is not of value in this therapy except in some cases of great renal injury. Further investigations are necessary to establish better evidence for this.

Rutin Therapy

Some benefit is reported from the use of rutin in therapy for capillary abnormality in hypertension. It is believed that apoplexy and retinal hemorrhage occur more frequently in hypertensive subjects with increased capillary fragility and permeability. In a series of cases rutin was given orally in doses of 20 mg. 3 times daily and tests for capillary fragility and permeability were repeated every six weeks for as long as abnormal results were recorded and every three months when normal. The dose of the drug was increased when the reading was abnormal and in some cases reached 400 mg. daily. After adequate dosage was continued long enough capillary fragility and permeability usually became normal, thus lessening the likelihood for development of apoplexy and retinal hemorrhage.[16]

Hesperidin

Hesperidin methyl chalcone (a flavone glucoside with vitamin P activity) is also employed in the treatment of increased capillary permeability in patients with hypertension. In a series of cases doses of 250 to 500 mg. of this drug were given three times daily and the normal state was restored in 1 to 2 months. In another group a dosage of 10 mg. three times daily was effective. In some cases where potassium thiocyanate was used there occurred cutaneous ecchymoses or retinal hemorrhages and increased petechial indexes. Since this drug may predispose to apoplexy and other hemorrhagic complications it was found wise not to administer it unless capillary permeability was normal or had been restored to normal with vitamin P.

Veratrum Viride

The use of *Veratrum viride* was introduced into medicine about a century ago but it fell into disuse. Within the past

decade it was observed that this drug possessed a vasodilating effect.[16a] Since then it has been claimed that the drug relieves the symptoms and lowers the blood pressure in hypertension when given in doses of 30 to 90 Craw units daily for several weeks.[16b] Another study of 40 patients to whom the drug was given orally showed an effect in 1 to 2 hours which reached a maximum in 4 to 6 hours and disappeared in 14 hours. It is believed that the decrease in blood prassure results from peripheral vasodilation rather than a depression in cardiac output. The mechanism by which this acts is thought to be as follows: When the veratridine (active principle of *Veratrum viride*) is injected there is a reflex fall in blood pressure and heart rate which originates from the afferent vagus nerve endings in the myocardium of the left ventricle and in the lungs. Although these ordinarily act with each heart beat the veratrum alkaloids cause them to act continuously. *Veratrum viride* is available in the following forms: (a) in liquid form for oral or subcutaneous administration; each 100 cc. contains 0.25 Gm. of the alkaloid; (b) in tablets containing 10 Craw units each with or without phenobarbital, ¼ gr. (the average dose being 3 to 6 tablets increased to 6 to 10 daily as indicated); (c) in tablets containing 3 Craw units, sodium nitrite, 1 gr. and phenobarbital, ¼ gr. (dosage, 3 to 6 tablets daily); and (d) in tablets with 2 minims each of tinctures of aconite and *Veratrum viride*, bile salts, cascara, and sodium nitrite, 1 gr. Recent studies have shown that only 10 to 20 percent of high blood pressure patients do not respond to therapy with *Veratrum viride*.

Dihydroergocornine

Another derivative of ergot, known as dihydroergocornine, also has shown some value in lowering blood pressure and decreasing the heart rate. These effects are generally constant but the drug's effect on the peripheral circulation varies and if present acts as a vasodilator. This drug is considered to be the only known ergot alkaloid which has a purely sympathicolytic effect on the peripheral vessels in humans. It does not possess the direct vasoconstrictor action on the peripheral vessels as do the other ergot alkaloids. Because it acts on the higher autonomic centers in the medulla and hypothalamus dihydroergocornine gives a sustained action which is not true of the vasodepressor drugs now commonly used.

The dosage varies with the patient but it is generally given in small doses because large doses cause the blood pressure to rise and there also may be nausea and vomiting. Dihydroergocornine also has cumulative properties and the cumulation may agitate the hypertensive state.

In the study of a group of sustained hypertensive patients 0.1 to 0.5 mg. of dihydroergocornine methanesulfonate was given intravenously each day until the ideal basal treated pressure was obtained. If satisfactory results were achieved the drug was then given orally (in liquid form) in doses of 0.25 to 0.5 mg. daily as maintenance therapy.[16c]

Another study of the use of dihydroergocornine has shown that the drug either produced no effect or a mild transient drop in blood pressure in patients with normal pressure but in hypertensive patients there was a marked acute drop which was followed by a prolonged period of lowered pressure. The drug was given intravenously at the rate of 0.1 mg. per minute or by intravenous drip for 15 to 30 minutes in doses of 0.3 to 1.25 mg. to the normal patients and in doses of 0.1 to 0.5 mg. to the hypertension patients. Of the latter group of 40, 16 had undergone subtotal sympathectomies. Slight perspiration and tiredness or headache were noted following a dosage of 0.1 mg. and after well-tolerated doses respiratory depression occurred. Nausea, vomiting and epigastric pain occurred within 15 to 30 minutes after the injection of 0.5 mg. to the hypertensive group and 1 mg. to the normal group.[16d] This is further evidence of the fact that patients with hypertension are more sensitive to the drug than are individuals with normal blood pressure.

It is thought that dihydroergocornine may prove to be a valuable adjunct in the

palliative therapy of hypertension.[16e] Further investigation is necessary.

Pentaquine

Pentaquine, a drug used in treating malaria, also has been found to reduce blood pressure as a result of a depression of the sympathetic nervous reflexes.

Tetraethyl Ammonium Salts

Recently there has been introduced into therapy the use of quaternary ammonium compounds which act by blocking reversibly the transmission of the motor impulse of the sympathetic and parasympathetic divisions of the autonomic nervous systems. Tetraethyl ammonium chloride is now available for intravenous and intramuscular administration and it is of value in both diagnosis and therapy of hypertension. It is particularly useful in determining the degree of severity of high blood pressure in pregnant women. Because it may cause untoward reactions it must be used with caution. The intravenous dose of the solution containing 0.1 Gm. in each cc. is 1 to 5 cc. (no more than 7 mg./Kg. of body weight); and the intramuscular dose is 10 to 12 cc. divided into 2 doses and given in each buttock (no more than 20 mg./Kg. of bodyweight). These dosages may be given once or twice a day for a period of time. The frequency of injections is dependent upon the duration of the relief of symptoms.

Benzazoline Hydrochloride

Benzazoline hydrochloride is a new vasodilator which recently has been made available. It is of value in a number of peripheral vascular diseases. Investigations have shown that it has some effect on hypertension because of its property of decreasing blood pressure. Some workers have found benzazoline of value as a diagnostic and prognostic agent preceding sympathectomy.[16e, 16f] Clinical trials have shown it to be as effective as a sympathetic block. It has the added advantages of greater ease of administration and of producing less discomfort to the patient. If good vasodilation is produced by the drug the postoperative prognosis is generally good. The dosage used is 50 mg. intravenously followed in an hour by another 50 mg. and generally in another hour by 100 mg. Patients given this dosage should be closely observed because they may on standing up develop hypotension to the point of syncope.[16f] Benzazoline hydrochloride may cause some side reactions such as goose-flesh, formication, flushing, and a feeling of warmth at the beginning of treatment, but their incidence decreases as the drug is continued. Tachycardia, tingling, chilliness, nausea and epigastric discomfort have been reported in some instances. Vomiting and diarrhea occur rarely. The drug also stimulates secretion of hydrochloric acid and should therefore be administered with extreme caution to patients who have a history suggestive of peptic ulcer or gastritis.

Posterior Pituitary Therapy

It is possible that the pressor principle of posterior pituitary may be concerned in the etiology of vascular hypertension. In essential hypertension there is a proliferation of basophilic cells which are thought to be concerned with the formation of this principle. However, these adenomatous cellular accumulations are also present when abnormally high blood pressures are absent.[17]

Nephrectomy

Because the kidneys are believed to play an active part in essential hypertension nephrectomy has been employed to relieve the condition. This operation is a very complex affair and should not be oversimplified.[2]

Following animal experiments which showed that it might possess some value nephrectomy became quite popular in the treatment of hypertension but since has lost some of its widespread usage. It is necessary in selecting patients for nephrectomy to carefully consider many factors.[18-21]

Sympathectomy

Investigation of surgical methods for treatment of hypertension led to the use

of sympathectomy because it was thought to have a specific effect since hypertensive individuals are believed to have a high degree of peripheral resistance which is related to constriction of the splanchnic arterioles. Since circulation through the extremities is not increased the vasoconstriction is believed to be generalized. Various workers used different methods with divergent results.[15] One used a subdiaphragmatic sympathectomy[22,23] and another used a supradiaphragmatic sympathectomy.[24, 25] Other methods also have been used[26] and one particularly was found to lower the blood pressure to normal levels which were maintained for several years following the operation.[27, 28] One worker used total sympathectomy with some success but this operation is still highly experimental.[29]

The patients must be carefully selected and thoroughly examined. Determination of the blood nonprotein nitrogen, total serum proteins, P.S.P. excretion tests, Fishberg concentration tests, and intravenous excretory urograms will show the functioning of the renal apparatus. The heart should be examined and studied by means of x-ray, electrocardiograms, venous pressure, vital capacity and circulation time studies. It is necessary that the blood pressure be taken frequently during the day so that any sympathetic nervous system overstimulation can be observed. This is done while the patient is lying, sitting and standing and 30 and 60 seconds after immersion of the hand in water at 4°C. for one minute.[30] The sodium salt of 5-isoamyl-5-ethyl-barbituric acid in doses of 0.2 Gm. is given at 7:00, 8:00 and 9:00 P. M. and the blood pressure carefully observed every hour. Best results of sympathectomy were observed in those patients in whom the blood pressure fell and the pulse pressure was less than or equal to one-half the diastolic pressure following this procedure. When the pulse pressure was 20 mm. or more in excess of one-half the diastolic pressure the results of sympathectomy were poor. If eye-ground changes were minimal and no evidences of renal or heart failure noted results were even better. In most cases headache and other similar symptoms were relieved, cardiac and renal function were improved and abnormalities in the fundi disappeared.[15] It is problematical whether or not the fall in blood pressure will be significant.

Other tests have been used such as administration of ½ gr. doses of sodium nitrite every hour for 6 hours or intravenous injection of pentothal sodium but these had no advantage over the test described.[2]

As a result of sympathectomy biopsy of kidney tissue has revealed that more than half of over 1,000 patients showed no morphologic evidence in the kidney which would account for the hypertension. Thus it can be concluded that although renal vascular disease is an end-result of hypertension it is not necessarily the sole cause. From the evidence of the biopsies it is possible that the important factor may be vasoconstriction mediated through the sympathetic nervous system and begun by some humoral, chemical or unknown mechanism. Thus it is logical to employ thoracolumbar sympathectomy to interrupt the cycle.[31, 32]

However, as stated previously, the cases should be studied thoroughly and the operation undertaken in patients who suffer headache and in whom hypertension is overtaxing the capacity of the heart or kidneys for months or years. It is contraindicated in patients over 50 years of ago.

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Aureomycin's Effect on Pertussis

Scientists of the Public Health Service believe they may be on the way to developing a more effective treatment for whooping cough, according to a report contained in the May 13 issue of *Public Health Reports*, a Service publication.

Current studies indicate that aureomycin, a relatively nontoxic antibiotic which can be given by mouth, may shorten the course of the disease and lessen its intensity.

Doctors Joseph A. Bell, Margaret Pittman, and Byron J. Olson are the investigators working on this project in the Microbiological Institute, one of the National Institutes of Health at Bethesda, Maryland.

Work on treatment of pertussis with aureomycin was undertaken at the National Institutes of Health, research branch of the Public Health Service, in December 1948. The main objective of the studies was to determine whether aureomycin is of value in the treatment of mice experimentally infected with whooping cough and, if of promise, to test its value in human cases of the disease.

The early favorable results of the laboratory experiments justified a clinical investigation which was promptly undertaken. So far, 20 patients have been treated with aureomycin, with apparently beneficial results.

Second Annual Symposium on Orthopedic Appliances

According to an announcement just made by Dr. E. R. Weidlein, Director, Mellon Institute, that organization will again join with the University of Pittsburgh's School of Medicine in holding a Second Annual Symposium on Orthopedic Appliances at the Institute during the week of September 19, 1949.

Hazards in Intrapleural Pneumonolysis

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Since performing the first intrapleural pneumonolysis ever done in the country of Korea on May 13, 1947, the operation has been repeated thirty-four times. While each case has presented its own particular problems, nevertheless the details have been so true to type that no comment is required on most of the case histories. We have selected five for brief summaries, although we are increasingly convinced that there is seldom such a thing as an easy pneumonolysis, and never one which is entirely free from danger. Because the x-ray does not tell the complete story, the situation can never be fully visualized before entering the thoracic cavity, and hence there is always the demand for quick and careful thinking on the part of the operator if his judgment and decision are to be proven correct by results.

Of the 34 pneumonolyses done to date (July 21, 1948) 9 have been on women and 25 on men, 10 in the right chest and 24 in the left.

In the *case No. 1*, Chang K—T—, female, age 31, there were large cavities in both upper and lower lobes on the right which failed to close with pneumothorax. Thoracoscopy revealed the upper part of the lung adherent to the anterior chest wall with the lower part held out by a broad, tense adhesion attached to the 5th, 6th and 7th ribs. After severing this adhesion close to the chest wall, a heavy posterior adhesion that prevented the collapse of the upper lobe was cut from the 4th and 3rd ribs, but since the incision was approaching very close to lung attachment it was not carried further. After the operation, pneumothorax was much more successful, and in spite of the upper lobe being attached to the anterior chest wall, both cavities formerly visible disappeared. Much to our chagrin, however, a contralateral spread occurred, necessitating a pneumothorax on that side, more successful than on the right, but still showing definite upper lobe adhesions. Since the sputum was converted, however, these have been left alone. (There has recently been a positive sputum report after having been negative for 7 months). Though a 50 per cent bilateral collapse has been maintained, the patient has never complained of dyspnea and has never developed fluid. Thus the first pneumonolysis ever done in Korea promises to be effective in production of results, although incomplete and inadequate from a surgical standpoint.

Case No. 10, Kim S—C—, male, age 21, was admitted August 1, 1946 with a far advanced involvement of the left lung. Pneumothorax was started on August 13 and good collapse secured except for adhesions in the apex and on the 3rd rib posteriorly which were holding open a cavity. On July 22, 1947 pneumonolysis was done. The posterior adhesion proved to be double, the branches being 1½ and 1 cautery blade wide. Both were cut without difficulty with no bleeding and good relaxation. The adhesion in the circle of the first rib was about 2½ blades wide, and because of its shortness had to be cut very close to the parietal pleura. There was some bleeding requiring coagulation

(Note) Dr. Smith graduated from the medical school of the University of Kansas in 1910 and went to Korea as a medical missionary. He has been back in the United States for his sabbatical years and also when the Japanese repatriated him on the Gripsholm. After the war, the War Department sent him back to Korea to help rehabilitate the tuberculosis service. Now that the Army is withdrawing from Korea Dr. Smith has returned to the Medical missionary field and is acting as superintendent of the hospital of the Presbyterian Mission at Taegu, but still acts as consultant for the tuberculosis sanatorium at Masan.

by heat to check. The patient at this time complained of pain in his arm and next morning was found to have a definite anesthesia in the area of distribution of the ulnar nerve. Sensation returned very slowly. By mid-September it had returned to the middle of the forearm only, but at the time of his discharge on February 2, 1948 (pneumothorax being still maintained) recovery of sensation was complete. The loss of sensory nerve function was doubtless due to heat injury to the ulnar nerve segment of the brachial plexus, that part of the plexus which lies nearest the apical pleura.

Case No. 11, Hwang K—S—, male, age 28, was admitted July 7, 1947 with far advanced bilateral pulmonary tuberculosis and a 2 plus sputum. Pneumothorax was unsuccessful on the right because of pleural adhesions, but had been started on the left at another hospital in June of 1946 and the patient was referred to us for pneumonolysis. On August 12, 1947 the thoracoscope was placed in the 4th intercostal space and the anterior axillary line. A heavy adhesion was seen attached to the 4th and 5th ribs posteriorly, with a smaller one attached to the 2nd rib anteriorly and a still smaller one behind it. The cautery was placed in the fifth intercostal space about two inches posterior to the thoracoscope and the adhesions were cut in the order listed. There was good retraction of the lung. In suturing, the two-inch curved needle used for placing a deep silkworm gut retention suture broke in the middle, leaving the pointed half of the needle in the tissues. Although incision was made at once, careful search failed to locate the needle. X-ray films of the chest wall also failed to locate it, but a few days later it was spotted lying apparently on the lower border of the upper lobe of the lung. After staff consultation it was decided to do some watchful waiting rather than risk damage to the lung by attempted removal. It was carefully observed from day to day by fluoroscope and on September 22 one end of the needle appeared to be projecting beyond the border of the partially collapsed lung. The following day the thoracoscope was placed where the cautery had been placed previously and the needle was seen lying in the interlobar fissure, all buried except about 1/8 inch of the point at the lower end. Through an enlarged incision where the thoracoscope had been previously placed a 12-inch uterine dressing forceps was introduced, the point of the needle seized and the needle extracted. The recovered segment measured 15/16 of an inch in length.

Then on inspection of the lung, the stumps of the adhesions cut at the first operation were seen and a long apical adhesion within the circle of the first rib, posterior to the site of the apical adhesion cut at the first operation. It had not been visible at that time, being hidden behind the adhesion which was cut. Although most of the adhesion contained lung tissue, there appeared to be enough of it free of lung to risk cutting. It was about 1 1/8 cautery blades wide and was cut very close to the apical chest wall—part of the parietal pleura being dissected off. There was good collapse without bleeding. During the forty-two days of uncertainty between operations the patient had been very composed, never once making complaint about what had happened or even asking for something to be done. But there was a general sigh of relief from doctor, staff and patients when the broken needle was recovered. (Incidentally, our Korean patients universally manifest the utmost confidence in our judgment as to any course of procedure which may need to be followed in their treatment.) This patient made an uneventful recovery. His sputum was converted and on Nov. 27 he was returned to St. Mary's Hospital in Seoul which had referred him to us, pneumothorax treatment to be continued there.

Case No. 21, Kim H—S—, female, age 27, was admitted Oct. 26, 1947 with a far advanced pulmonary tuberculosis, having a 4 cm. cavity in either apex. Sputum was 3 plus. Pneumothorax was started on the left Nov. 3, 1947 with a satisfactory collapse except that the apical cavity was held open by adhesions. On January 20, 1948 a partial pneumonolysis was done.

The thoracoscope was placed in the 3rd intercostal space, anterior axillary line, the cautery in the 2nd space, mid-axillary line. A small anterior adhesion on the 2nd rib was cut and then two others on the 2nd and 3rd ribs posteriorly. Besides these there was a large antero-apical adhesion in the circle of the first rib which was still holding the cavity open. A large part of this was cut with considerable retraction of the lung, but there remained an area of attachment in which it was impossible to define the lung border and the operation was suspended. There was considerable bleeding but it was easily checked by coagulation with the electrocautery. The operating time was 1 hour and 20 minutes. Fluoroscopy after the operation showed the cavity still open, the apex still suspended by adhesion.

The day following operation there was a moderate amount of subcutaneous emphysema and a definite Horner's syndrome of the left eye (ptosis of upper lid, narrowing of the palpebral fissure, enophthalmos and contracted pupil) and she could talk only in a whisper. Laryngoscopic examination showed a paralysed left vocal cord. We at first tried to comfort ourselves by attributing the condition to emphysema, affecting the cervical sympathetic and recurrent laryngeal nerves, but, when talking with the patient she stated that during the operation she felt the burning on the inner anterior part of her chest and suddenly discovered that she could not talk, which would make it appear that the cautery was responsible for the damage. For two months following operation the patient experienced some difficulty in swallowing, apparently from incomplete closure of the glottis as liquids would get into the trachea, but this cleared up.

Pleural fluid appeared subsequent to operation. On January 22, 120 cc. of dark, bloody fluid was aspirated; on January 23, 300 cc., dark; January 27, 100 cc., still bloody. Partial atelectasis of the left lung developed with an obliterative pleuritis. In spite of that, because of the large cavity in the right apex, pneumothorax was started on that side on April 27, with a fairly satisfactory collapse. At present writing (July 21, 1948), six months after pneumonolysis, the sputum is still 2 plus; the Horner's syndrome is still present though not so marked. The left pupil is smaller than the right but reacts to accommodation and light. Aphonia persists and there is no movement of the left vocal cord.

It is understandable that the Horner's syndrome could have been produced by damage to the cervical sympathetic, possibly through injury of the inferior cervical ganglion. But how to explain the aphonia with the recurrent laryngeal nerve located so far away from the site of operation? Even if there were sympathetic fibers communicating with the recurrent laryngeal, why should the paralysis persist?

Five others of our patients, *Nos. 12, 14, 16, 26 and 34*, had apical adhesions severed without complications except that No. 26 developed fluid (clear) and No. 14 developed a bronchial communication on the contralateral side and an empyema to which he succumbed.

Case No. 29, Kim O—N—, female, age 25, was admitted March 3, 1948 with a pneumothorax already started on the left where the upper lobe was inadequately collapsed and two cavities were being held open by adhesions. Lung collapse was pushed and on May 13, 1948 the thoracoscope was placed in the 4th intercostal space in the anterior axillary line and the cautery in the 6th space in the posterior axillary line. A long adhesion, 1 cautery blade wide, extending to the 3rd rib posteriorly, was first severed with considerable lung retraction, and also one to the 8th rib laterally. A broad, many-branched adhesion extended from the circle of the first rib down to the 2nd with the lung penetrating rather closely into the adhesion. By dissecting the parietal pleura the lung tissue was not damaged though air bubles were seen in a very thin-walled cavity. There was fair retraction but still some attachment posteriorly which was left alone because of poor visualization. Operating time was 17 hour, 10 min. An x-ray taken postoperatively showed the lung still

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The Choice of Digitalis

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Within the past few years, many digitalis preparation have been made available for clinical use. More recently, Digitoxin has been exploited by many pharmaceutical firms and it might be appropriate to make a few pertinent remarks concerning this potent digitalic glycoside since it is being employed by clinicians perhaps without regard to its toxicity.

Sollmann (1) in his discussion of isolated digitalis principles states that Digitoxin has the undesirable feature of producing excessive irritation. DeGraff (2) states that Digitoxin is potentially the most dangerous since it requires more care and skill in its use than do some of the other glycosides. Master (3) and Flaxman (4) report cases of Digitoxin toxicity and the inference is that the factor of safety seems to be narrow. Stoll (5) and his co-workers have added much to our knowledge of the chemistry of the other digitalis glycosides, especially those isolated from the plant *Digitalis lanata*. Recently, however, the clinical application of some of these glycosides has revealed their value in specialized fields of cardiotherapy (6), (7), (8), (9).

Digitalis in common use today consists of those principles isolated from *Digitalis lanata* and *Digitalis purpurea*. The former plant depends for its main action on Lanatosides A, B, and C (Digilanid). Each of these glycosides has proven cardiotonic effect alone and in combination. *Digitalis purpurea* contains Digitoxin as its most active constituent.

Both plants contain Digitoxin in comparatively large quantities and this glycoside can be isolated with comparative ease. Although the percentages of glycosides may vary with each batch, Stoll (10) has demonstrated that forty-six per cent of Lanatoside A, which is equivalent to Digitoxin, seventeen per cent of Lanatoside B, which is equivalent to Gitoxin, and thirty-seven per cent of Lanatoside C, equivalent to Digoxin, the last being a degradation product of Lanatoside C, are present in the *Digitalis lanata* plant. The yield of glycosides from *Digitalis purpurea* is variable but it has been demonstrated that Digitoxin makes up from 0.1 gm. or less to 0.6 gm. per kilogram of the leaf. Those purpurea plants yielding the least amount of Digitoxin usually contain a higher Gitoxin content.

Each Digitalis glycoside varies somewhat in toxicity upon the living heart muscle (11). Recent studies have demonstrated a selective action of some glycosides unlike that of Digitoxin on the cardiac mechanism.

Inasmuch as Digitoxin constitutes the largest assayable cardioactive glycoside of both Digitalis plants it is reasonable to believe that Digitalis depends for a great measure upon this glycoside for its essential cardiac effect. Gitoxin if present in appreciable quantities has demonstrable cardiac effect. Both of these glycosides may be given in varying percentage in the form of the whole leaf with essentially the same cardiotonic effect. Only the C fraction of *Digitalis lanata*, before degradation has occurred, demonstrates effects unlike the other glycosides (12), and this effect can only be detected appreciably when the drug is given parenterally. Its action is not unlike the glycoside Ouabain which is derived from the plant Strophan-

thus. Both Lanatoside C and Ouabain when given parenterally act upon the cardiac mechanism speedily but their effect is of short duration. They also have selective action on the neurocardiac mechanism.

The use of a single glycoside such as Digitoxin in lieu of the multiple glycosides which are found in the whole leaf may be lacking in efficacy in a large percentage of patients with demonstrable heart failure. In some, intolerance to a specific glycoside may be outstanding. Cardiac muscle has the ability of selective absorption under varying degrees of failure. If we remember that all of these glycosides are complex sugars the combination of these with cardiac muscle may be better understood. Just as muscle tissue combines with glycogen under normal physiologic states so the affinity of these glycosides may vary in the failing heart dependent upon varying muscle demand. Intolerance to specific cardiac glycosides will give rise to untoward ecects which are demonstrable clinically as evidence of intoxication.

When Digitalis is given over a long period of time for maintenance, the clinician can either use a whole leaf preparation or a combination of the various cardio-active glycosides, thereby allowing the cardiac muscle to select those gylcosides which are in demand from time to time. The use of a single glycoside over a prolonged period of time, as a rule, fails to supply the heart muscle with the varying cardiotonic assistance that it demands. Because of this selective demand, intolerance may occur with a return of the clinical manifestations of heart failure when an isolated glycoside is given. Due to the fact that methods of bio-assay used in detecting sufficient digitalization are inadequate and because of delayed Digitalis elimination, the use of a glycoside which is poorly tolerated may lead to a state of toxicity. Until further investigation has demonstrated the superiority of any isolated Digitalis glycoside and the ineffectiveness of the others, their use in combination appears the most logical choice of therapy.

With the exception of the C fraction of *Digitalis lanata,* (Cedilanid), all Digitalis glycosides act as well when given orally as when given parenterally (13). Their absorption by cardiac muscle and their rapidity of elimination cannot be rushed by the route of administration.

In the presence of extensive or overwhelming heart failure where the time element of therapy is essential, Lanatoside C is the drug of choice. It acts quickly by the parenteral route and it has been demonstrated to be rapidly eliminated. Following its use, the whole leaf or a combination of the Digitalis glycosides has been found to be the most desirable. Because of the selective action of Lanatoside C on the cardiac conductive mechanism it has also proved of value in the treatment of various arrhythmias (14), (15), (16).

In extensive heart failure it must be remembered that Digitalis is absorbed very slowly from the intestinal tract and this slow absorption may necessitate the use of Lanatoside C parenterally. As the heart failure abates, inactive Digitalis glycosides stored within the body from previous medication may be activated, giving rise to a state of intoxication. The use of rapidly-acting glycosides such as Lanatoside C and Ouabain should be withheld until the presence of stored Digitalis can be definitely ascertained. Although some investigators (17) give it irrespective of previous Digitalis therapy its use under these circumstances is not recommended.

In the choice of Digitalis for routine use in heart failure a mixture of the total Digitalis glycosides appears to be the best. It is felt by some (18) that preparations of the lanata leaf are more advantageous. Because of the discrepancy in the assay of the glycosides from the *Digitalis purpurea* leaf it is quite possible that consistent Digitalis effect may vary from time to time.

The ideal Digitalis prepaartion would be one containing all of the cardio-active glycosides in their natural state. This is particularly true in the case of *Digitalis lanata* as its glycoside content is consistent. Preparations of glycoside combinations are on the market but due to the expense of isolation, their cost is still quite

—Concluded on page 291

Penicillin Therapy in Children

Using fewer, larger dose injections of concentrated aqueous solution

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Seattle, Washington

Penicillin is one of the most popular drugs at present because of its high therapeutic value, rapid effect and low toxicity against a great variety of infections. Its chief disadvantage is that it usually is injected every three hours day and night, causing pain and discomfort. In children fear and loss of sleep are additional disturbing factors. In many cases, penicillin is probably given too often, in too large doses, in too much bulk, and over too long a period of time. The final criterion of its value is to cure the patient as rapidly as possible. This regimen of treatment which is more simple, more practical and more effective, coupled with more patient comfort, plus fewer hospital days per case, a large reduction in nursing time and a considerable savings in dollars is worthy of further consideration. If this can be accomplished by fewer injections of a more concentrated aqueous solution given only during the daytime (allowing the patient to sleep all night) it is obviously of marked advantage.

Keefer [1] and other early investigators stressed the fact that penicillin is almost entirely excreted from the urine in three hours. They advised repeated injections every three hours to maintain an adequate blood level for best therapeutic results. When sulfa drugs were first used, administration every 4 hours day and night was the method of choice. Today there are a multitude of published articles claiming good results with one single dose or one dose repeated two, three or four times daily without resorting to any treatment during the night. The same reasoning motivates some of the recent developments in the use of penicillin. The important consideration is that it has been clinically demonstrated that it is not always necessary to maintain a constant blood level for optimum therapeutic results. This study is primarily concerned with the CLINICAL evaluation of the case, without recourse to laboratory determinations, especially blood levels.

The present method of treatment is a continuation of a technique begun in 1944.[2] At that time a large group of navy personnel was treated by the author with penicillin injections 4 times daily, giving fewer but larger and more concentrated doses. They recovered more rapidly with much greater comfort. The present study is a continuation of this treatment over the past four years.

This report is based on the study of 88 children, from 1 week to 12 years of age, who received penicillin for acute respiratory infections. These patients were confined in the King County Hospital, Seattle, during the months from December, 1946, to July 1947; 53 children received the standard treatment by injection every 3 hours day and night; these cases served as controls; 35 children were treated by injections during the daytime only, beginning with not more than 4 the first day, gradually decreasing to 3 or 2 or even one injection daily as the patient improved. The children were not disturbed at night. It is reasonable to assume that a patient who has almost recovered from an illness requires less penicillin than the larger dosages given when he is acutely ill. For more accurate evaluation in this study the types of cases were divided into upper and lower respiratory infections. The upper respira-

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tory infections consisted primarily of sinusitis, tonsillitis, pharyngitis, otitis, mastoiditis, and adenitis. The lower respiratory group was made up of pneumonias, laryngitis, tracheitis, bronchitis and combinations of the above.

The method of treatment suggested is based on the treatment of each case as an individual problem. Penicillin was prescribed only in those cases where sulfa or other drugs could not be used due to vomiting, coma, idiosyncrasy, or where the severity or type of illness warranted its use. Four injections daily, during daytime hours, was the maximum number of injections given any patient in a 24-hour period. All patients were allowed to sleep during the night, except in extremely ill children where heroic measures were necessary to combat the disease. SLEEP IS STILL ONE OF OUR MOST IMPORTANT THERAPEUTIC ALLIES. This idea seems to be neglected at present. As the patient continued to improve, the number of injections was decreased to three times daily and then twice and finally once daily. This was maintained from one to four days after the temperature was normal depending on the type of case treated. The number of "shots" was decreased from day to day (as the patients temperature dropped and other symptoms improved) and the number of units per dose was also decreased. The control group receiving injections every three hours day and night (8 times in 24 hours) usually received the same dose from the start to the finish of their treatment. This is the standard method used by most physicians. The penicillin solution was made by adding 1 cc. distilled water to each 100,000 units of penicillin powder (i. e., 5cc. to a 500,000 unit ampule), therefore one cc. of this mixture equaled 100,000 units.

The above regimen of treatment is illustreated by the case report of a 5-year-old child with bronchopneumonia (Chart IV). He received .4cc. (40,000 units) four times the first day when he was very sick. When the temperature dropped and he felt better he was given 30,000 units (0.3cc.) only three times the second and third day respectively. As he continued to improve (normal temperture and no complaints or symptoms) 20,000 units (0.2cc.) were given twice daily. This treatment was adequate for complete and rapid recovery. DAILY OBSERVATION OF THE INDIVIDUAL CASE IS THE FACTOR WHICH DETERMINES THE DOSAGE AND NUMBER OF INJECTIONS. "Patient comfort" was considered. Four injections of a small amount, such as 0.4cc. each dose, hurts much less than 8 shots of 1cc. or more each day. Many of us who have received penicillin treatment can testify to this from personal experience.

Chart I

The average patient (in a 6 month period) on the "daytime only" treatment received a total of 9.4 injections compared to 22 for those on the routine three-hourly method. In other words, he recovered with only 42 per cent as many "shots" as the control patient and was not disturbed during the night.

Chart I

Penicillin Therapy

AVERAGE TOTAL NO. INJECTIONS PER PATIENT (88 CASES)

Date	No. Cases	Day & Night (x8)	Day Only (x4)
Dec. '46	20	30.5	
Jan. '47	16	19.5	11.
Feb. '47	24	15.	8.1
Mar. '47	10	38.	11.
Apr. '47	13	15.5	7.5
May '47	5	11.	
Total	88 Cases		
Average for 6 mo. Period per Patient		22.	9.4

The average patient on daytime only (x4) penicillin treatment received 9.4 shots for total treatment of the disease during entire hospital residence compared to 22 shots for those on 3 hour (x8) treatment.

Chart II

This chart reveals the average total units of penicillin used per individual case during the patient's entire treatment. It will be noted that it required approximately twice as much penicillin in the "three-hour day and night group" as in the 4 times (or less) daily treated group; 562,000 units per case compared to 277,000 units.

Chart II

AVERAGE TOTAL UNITS OF PENICILLIN PER CASE (000 OMITTED)

	Night Rx	Rx (x4)
Dec. 1946	634,000	.....
Jan. 1947	432,000	230,000
Feb. 1947	300,000	250,000
Mar. 1947	1100,000	415,000
Apr. 1947	460,000	215,000
May 1947	450,000	.....
Total Dose-Average	562,000	277,000

Approximately twice as much penicillin was used on patients receiving shots every 3 hours day and night as on those receiving 3 or 4 injections daily.

It is reasonable to assume that the patient needs larger doses more often when he is very ill, and smaller, less frequent doses when his temperature is normal and he feels well.

Chart III

In these days of shortages and high costs, the important consideration in every hospital is to cure and discharge the patient as soon as possible. It will be noted that patients receiving treatment four times daily (or less) require an average of only 6 hospital days compared to 8 days for those treated around the clock (every three hours).

This is the most important consideration in the entire treatment. The patients were cured faster, cutting the average hospital time by 25 per cent, with 42 per cent fewer injections, and using 50 per cent less penicillin.

Chart III

AVERAGE NO. DAYS HOSPITALIZED

Date	Day and Night Rx	Day Rx (x4)
Dec.	6.7	
Jan.	7.5	6.
Feb.	7.	6.26
Mar.	12.3	9.
Apr.	5.6	5.
May	8.	
Average	8 days	6 days

Patients on daytime only treatment (x4) were in the hospital an average of 6 days per disease compared to 8 days for those treated around the clock (x8).

Chart IV

This case report compares the four-times-daily treatment which was given this patient with the usual day and night technique. This 5-year-old boy with broncho-

Chart IV

PENICILLIN TREATMENT

Case Report

J. C. Male Age 4 Years—Diagnosis Bronchopneumonia

FEWER DOSAGES—CONCENTRATED SOLUTION—DAYTIME TREATMENT

100,000 units in 1 cc. water

Hosp. Day	No. units per dose	No. of shots daily	Interval in hours	Amt. in cc. per shot	Total cc. per day	Total units penicillin per day
1	40,000	4	q.i.d.	0.4 cc.	1.6	160,000
2	30,000	3	t.i.d.	.3 cc.	0.9	90,000
3	30,000	3	t.i.d.	.3 cc.	0.9	90,000
5	20,000	2	b.i.d.	.2 cc.	0.4	40,000
4	30,000	2	b.i.d.	.3 cc.	0.6	60,000
Summary Case Total		14 Shots		Total cc.	4.4	440,000 Total Penicillin

STANDARD TECHNIQUE KING COUNTY HOSPITAL

50,000 units in 1 cc. water

Hosp. Day	No. units per dose	No. of shots daily	Interval in hours	Amt. in cc. per shot	Total cc. per day	Total units penicillin per day
1	20,000	8	3	.4cc.	3.2	160,000
2	20,000	8	3	.4cc.	3.2	160,000
3	20,000	8	3	.4cc.	3.2	160,000
4	20,000	8	3	.4cc.	3.2	160,000
5	20,000	8	3	.4cc.	3.2	160,000
		40 Shots			16.0 Total cc.	800,000 Penicillin

pneumonia required 14 shots for complete recovery compared to 40 for the standard method of treatment. He received a total of 4.4cc. of penicillin solution compared to 16cc. as required by the old method. This is only about one-fourth the bulk; 440,000 units of penicillin were used for complete recovery as against 800,000 units (almost twice as much) by the standard treatment. The concentration of the solution used in the 3-hour day and night treatment was 50,000 units to 1cc. (this is more concentrated than the solution used in the average hospital). It is usually 10 to 20,000 units to 1cc. This greatly increases the bulk amount injected into the patient. Some authorities advocate 5,000 units to 1cc. mixtures.[3]

Chart V

A comparison between the types of disease was made, including the upper and lower respiratory infections. Again, the cases illustrated that it required approximately twice as much penicillin in the cases treated every 3 hours as in those treated 4 times daily, whether it was tonsillitis or pneumonia. Lower respiratory infections, which were usually more severe, required about twice as much penicillin per case as the upper respiratory infections.

Physicians frequently do not pay enough attention to the cost of medication nor to the number of hours consumed in nursing time required for mixing and administration of these drugs as well as to fears and comforts of their patients.

Chart VI

This chart is a sample for the first month of this study. The same relative proportions were true of the next five months. It illustrates the profound differences in some of

Chart V

PENICILLIN TREATMENT

UPPER RESPIRATORY INFECTIONS 65 Cases			LOWER RESPIRATORY INFECTIONS 23 Cases	
Frequency of Rx	**No. of Cases**	**Average No. Units per Case**	**No. of Cases**	**Average No. Units per Case**
q. 3 hrs. (x8)	51	400,000	17	660,000
q.i.d. (x4)	14	230,000	6	320,000

Approximately Twice as much penicillin was used on cases treated every 3 hours than on those treated x4 daily.
Lower respiratory infections required about 50 per cent more penicillin than the upper respiratory infections.

Chart VI*

USE OF PENICILLIN PEDIATRIC DEPARTMENT KING COUNTY HOSPITAL

Approx. Daily Items:	December 1946	January 1947
Highest Number of Patients on Penicillin Therapy	23	10
Lowest Number of Patients on Penicillin Therapy	10	4
Average Number of Patients on Penicillin Therapy	15	5
Highest Dose Per Patient	8 x 30,000 = 240,000 U.	4 x 100,000 = 400,000 U.
Lowest Dose Per Patient	8 x 10,000 = 80,000 U.	3 x 10,000 = 30,000 U.
Average Dose Per Patient	8 x 20,000 = 160,000 U.	4 x 25,000 = 100,000 U.
Average Number of Injections Per Patient Per Day	8	4
Average Total Injections Per Day	120	20
Average Total Units Used Per Day	2,400,000 U.	500,000 U.
Average Total Number Hours Nursing Time Required for Mixing and Administration of Penicillin	6 hrs.	1.5 hrs.
Average Total Cost Per Day	$10.80	2.03
Average Cost Per Patient	.72	.40
Differential: Saving per month in cost (total)		$263.10
Saving per day in nursing time		4.5 hrs.

the "intangibles." The number of cases receiving penicillin during January were fewer than in December because they were more carefully selected. Penicillin was used only when no other drug would meet the requirements. The dosages were smaller than those previously used to effect a cure. Consequently with fewer children receiving penicillin and with these having fewer but more concentrated "shots," the nursing time was reduced considerably. Only one-fourth (25 per cent) as much nursing time was consumed as in the previous month, 1¼ hours compared to 6. Approximately 263 dollars were saved in penicillin therapy alone in the one month by careful selection of patients and using this newer technique.

Comment

There is much laboratory as well as clinical evidence to prove the advantage of high dosage penicillin injections given several times daily instead of every three hours around the clock. The practitioner of medicine is chiefly concerned in curing his patient as rapidly as possible. He is more interested in his patient than the blood level of penicillin. The blood level is primarily an academic rather than a clinical problem. In the laboratories of the two largest private hospitals in Seattle during the entire year of 1947, there was only a total of two requests for penicillin blood levels and none for sulfa. The variety of concentrated penicillin mixtures, such as those in oil, wax, or both, procaine in oil suspension, the newer monostearate solutions, and water suspensions testifies to the efficacy of high dosage "single shot" treatments. The fact that the blood curve reaches a peak and gradually returns to the base line in 24 to 96 hours[4] instead of maintaining a constant level has not deterred physicians from using this newer method of treatment. Zubrod[5] has reported that penicillin exerts a bacteriostatic effect in vivo for longer periods than indicated by a measurable blood concentration, suggesting that maintenance of a constant blood level might not be necessary in treatment of bacterial infections. Gerber[6] et al. in treating subacute bacterial endocarditis obtained better results when they treated their patients with divided daily doses of large size rather than continuous intramuscular or intravenous doses to maintain constant levels. They gave "booster" doses of 300,000 or 500,000 units every 12 hours in addition to the usual intramuscular doses of 100,000 units every 3 hours. They summarize that repeated exposures of highly resistant bacteria to high peak concentrations even though of short duration are often of greater therapeutic efficacy than continuous blood levels at lower concentration. These "booster doses" producing high peak concentrations not only cleared the blood of bacteria but were able to penetrate the deeper diseased tissues to kill the organisms within.

Fleming,[7] the co-discoverer of penicillin, has found that the greater rise and fall of the blood level after single, large dose, intramuscular injections is a very effective form of treatment. His observations were similar to those of Gerber,[6] namely, that large-sized divided doses were therapeutically more active than where a continuous blood level was maintained. Fleming[7] has shown that with large single doses, higher peak blood levels are reached and continue higher over a two-hour period than smaller doses.

A blood level of 0.01 to 0.04 units penicillin per cc. is considered sufficient to sterilize the blood in the average infection. In addition the larger amounts mentioned above probably kill the organisms deeper in the tissues, which theoretically explains the more rapid therapeutic results obtained in the series of cases which have been presented. Other attempt have been made to slow the rate of absorption of penicillin. Seeler[8] et al. claim that the oral administrations of caronamide with penicillin injections will reduce the number and frequency of injections necessary to maintain therapeutic blood levels. Caronamide slows the rate at which plasma penicillin concentrations decline.

An aqueous solution of penicillin is preferable to any other type if it is equally effective. The ease of preparation and administration plus the absence of reactions are in favor of the water-soluble solutions. The pain, discomfort and delayed local as well as general reactions of the oil and

wax mixtures are well known. In children concenrations of 100,000 units to 1cc. of water cause only momentary pain or stinging. Concentrations of 150,000 to 200,000 units per cc. cause local pain for about 1 to 5 minutes. We have not seen any local or general reactions.[9] Sir Archibald Fleming has observed that prolonged action from penicillin can equally well be obtained by injecting large doses of an aqueous solution than with an oil or oil wax mixture.[10] Ory noted that little difference in the height or duration of the serum level was observed with the same dosage given in water or saline or in oil mixture.

CONCLUSIONS

For diseases requiring the use of penicillin more concentrated doses were injected four times or less daily (none during the night) instead of the usual smaller doses every three hours day and night. As the patient improved he received 3, 2 or only 1 dose daily. Certain advantages were noted. Fewer injections were required, about one half as much penicillin was used, and the patients were discharged from the hospital in 25 per cent less time. The patient's comfort and morale were increased and he was not disturbed at night. Only one-fourth as much nursing time was required with this regimen. A definite dollar savings in the use of penicillin was also noted. This regimen is worthy of further trial especially where penicillin is indicated in hospital practice.

Note: At present we are using 200,000 units penicillin G in distilled water (1cc.) —the dose varies from 100,000 u. (.5cc.) once or twice daily in most respiratory infections.

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1155 Tenth Avenue North

HAZARDS IN INTRAPLEURAL PNEUMONOLYSIS

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suspended by the apical adhesion, but on June 7, while routinely fluoroscoping, it was noted that the adhesion had disappeared and this was verified by x-ray film. The upper lobe was completely collapsed, with no fluid in the gutter and no complications other than apparent atelectasis of the upper lobe. Later a small amount of fluid slowly developed and on July 20, for the first time, 300 cc. of clear fluid was aspirated.

COMMENT

Alexander (Collapse Therapy of Pulmonary Tuberculosis, page 316) mentions one case of ulnar neuritis of several weeks duration following the division of an adhesion in the dome of the pleural cavity, but the very limited literature to which we have access makes no mention of involvement of cervical sympathetic and recurrent laryngeal nerves with Horner's syndrome and aphonia resulting from damage during operation. With increasing experience comes increasing respect for apical adhesions. If the space between lung tissue and apical parietal pleura is found to be so short as to require dissection of the pleura, we feel that the operation should be continued only with the full realization that serious complications can easily develop and the patient's condition and chances for recovery with or without surgery must determine the risk to be taken. In the case of No. 21, the condition of the contralateral lung made thoracoplasty out of the question and in spite of the untoward and unexpected results we feel we were justified in proceeding with the operation.

CASE REPORTS

A Case of Sarcoma and Adenocarcinoma of the Same Uterus—Alive 24 Years After Operation

Alfred M. Hellman, B.A., M.D., F.A.C.S.
New York, N. Y.

This patient was first seen by me in June 1916. She was then 48 years old. She had been married 19 years—had one child and had had one miscarriage.

Menses started very young and when fully established were regular every 28 days. The bleeding was profuse for two days and then slight for two more days.

At that time the systolic blood pressure was 140—Pulse was 96—Weight 106½ lbs.—Hemoglobin 60 per cent—R.B.C. 2,800,000 — W.B.C. 10,800 — Polys. 84½ per cent—Small Lymphocytes 14 per cent —Large Lymphocytes 1 per cent—Basophiles ½ per cent. The red cells, of course, were very pale.

At that time the patient was very nervous and irritable—urination was frequent during the daytime—not at night. Appetite was poor—digestion and bowels normal—there was slight morning headache. The physical examination revealed ren mobilis dextra second degree, small fibroids of the uterus and cystic cervicitis. After 2½ weeks of bed rest and forced feeding, the condition was unchanged except for a gain of weight (2½ pounds). The urine was always normal.

General supportive treatment was instituted and in November 1919 the hemoglobin was 80 per cent and the R.B.C. 4,224,000, and the patient felt correspondingly improved. The systolic blood pressure was 132.

The symptoms suggested menopause. In May 1923 the patient reported that there had been no menses or other vaginal bleeding since October 1922 (7 months). In March 1924 the chief complaint was flushes.

In June 1925 the picture had greatly changed. The patient was now 57. The complaint was almost continuous spotting for three weeks, and the examination revealed a cervical polyp, which was promptly removed and the Pathological Report made by Dr. George L. Rohdenburg, Director of Laboratories of the Lenox Hill Hospital, was as follows: (See illustration No. 1)

"The gross specimen consists of an irregular grape-like mass of tissue of reddish white color, the dimensions of which are 6 cm. in length and from 1 to 3 cm. in width. On section the tissue is of homogeneous appearance.

"Microscopic examination of sections made from several portions of the mass shows large areas of necrosis. Such portions of the mass as are still preserved show a loose edematous and somewhat hemorrhagic stroma in which there are scattered a large number of giant cells with usually a single nucleus and typical of giant cells derived from muscle. Between these giant cells are a few fibers of smooth muscle. The connective tissue elements are short and have hyperchromatic nuclei in which mitotic figures are occasionally observed. About the necrotic portions there are foci of round and polymorphonuclear infiltration. The neoplastic area is most marked in what appears to be the pedicle of the mass. Diagnosis Myosarcoma in Uterine Polyp."

Because of the report and because the spotting continued, I decided on a complete hysterectomy which was performed by me the same month, June 1925.

The postoperative Pathological Report,

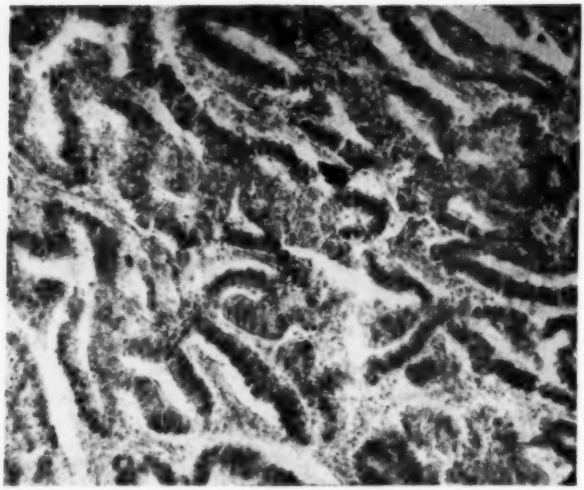
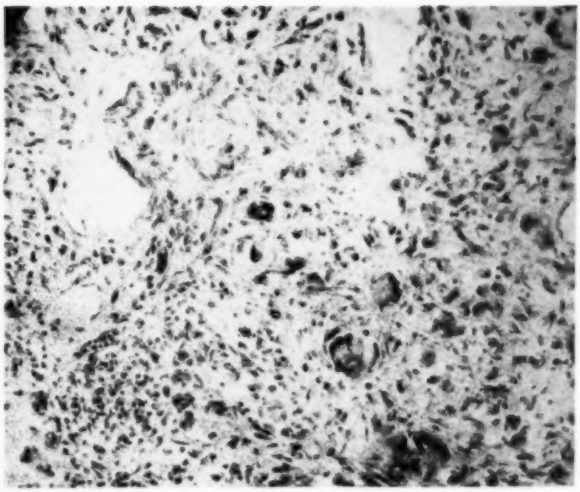


Fig. 1. (left) Photomicrograph of Section of Polyp.

Fig. 2. (below) Photomicrograph of Tumor of Body of Uterus.



again by Dr. George L. Rohdenburg, and detailed below, shows adenocarcinoma. (Fig. 2).

"DIAGNOSIS: Adenocarcinoma of the body of the uterus. Multiple fibromyomata. Chronic cervicitis and endocervicitis. Chronic salpingitis. Senile ovaries.

"GROSS APPEARANCE: The specimen is a uterus complete with tubes and ovaries, received in saline. It measures 10 x 6 x 4 cm. The surface is free of adhesions but there are two irregularities on the posterior and one on the anterior wall produced by subserous fibromyomata. The uterus has ben sectioned through its posterior wall, the section having passed through a round intramural fibroid about 1.5 cm. in diameter. On the anterior wall, in the fundus and practically limited thereto, there is a large, raised, irregular area translucent in appearance. It is not definitely circumscribed. Over some portions of this region the endometrium is thin and atrophic and over others it has ben eroded. On section this tumor is 0.5 cm. in thickness. It is white and translucent. It infiltrates the surrounding tissue.

"The left ovary is atrophic with a small serous cyst at its lower pole. In the region of this cyst there is evidence of a recent hemorrhage. The fimbriated end of the left tube is hemorrhagic, and depending from the tube there are two small irregu-

—Concluded on page 289

A. M. A.'s 12-point Positive Program to Improve the Health of the People

(Chicago, Illinois—February 12, 1949)

A Federal Department of Health

1. Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces.

Medical Research

2. Promotion of Medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research.

Voluntary Insurance

3. Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs.

Medical Care Authority with Consumer Representation

4. Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest.

New Facilities

5. Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies.

Public Health

6. Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services. Remuneration of health officials commensurate with their responsibility.

Mental Hygiene

7. The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas.

Health Education

8. Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care.

Chronic Diseases and the Aged

9. Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals.

Veterans' Medical Care

10. Integration of veterans' medical care and hospital facilities with other medical care and hospital programs and with the maintenance of high standards of medical care, including care of the veteran in his own community by a physician of his own choice.

Industrial Medicine

11. Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, home and on the farm.

Medical Education and Personnel

12. Adequate support with funds free from political control, domination and regulation of the medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care.

THERAPEUTICS

A Regimen for Restoration of Cardiovascular Reserve

Oscar A. Strauss, M.D.
Chicago, Illinois

Arterial degenerative disease has its beginning in vascular impairment which may terminate in a cerebral, coronary, or mesenteric spasm or accident, or thromboangiitis obliterans. Other arterial sclerotic symptoms may precede the more serious ones mentioned. Milder symptoms appear in the form of intermittent claudication, effort syndrome, precordial discomfort, momentary lancinating cerebral pains, or in a still milder form noticed by numbness in the hands and feet, impaired hearing, vision and mental acuity.

The principal etiologic factors of arterial degeneration are dietary incompatibilities and indiscretions, focal infections, and emotional stress. The symptoms of arterial constriction are the same to a lesser or greater extent, regardless of the area involved. In addition to the temporary arterial impairment, liver, kidney, heart, and other organic function becomes burdened, and if not relieved, organic damage is the ultimate result.

The symptoms of arterial impairment are so widely distributed in the body that the numerous etiologic factors and their correction necessarily include many branches of medical science, and highly controversial viewpoints have created more or less confusion of thought. This is reflected in the fact that so many deaths occur among the younger age group of the medical profession. This fact would seem to be sufficient evidence upon which to seek a management to afford more than symptomatic relief.

The management here suggested invades many branches of medicine and may seem irregular or revolutionary in this age of specialization; however, it is based on a study and experience extending over fifty years. A half century ago, it was necessary to have a working knowledge of all branches of general medicine. Today, the practice of medicine is so highly specialized that an over-all knowledge is impractical. Even though we are confronted with an arterial damage affecting the entire circulatory tree, it is grouped in the various branches of the specialties, and the damage extending to every part of the circulatory tree, including the capillaries, is overlooked.

When confronted with an insidious and progressive condition, it is essential to follow a definite and decisive program. For centuries, medical science has realized the harmful effects of some foods and certain daily habits, and more recently, we have been able to prove their harmfulness by laboratory and other research. This definite knowledge is possible by the use of the sphygmomanometer and such laboratory aids as the x-ray, cardiograph, blood picture, serology, and blood chemistry. Leukocytosis proves an active infection. A low red count would suggest a nutritional deficiency. Serologic examination may show a luetic condition. Cholesterol, blood sugar, nonprotein nitrogen, urea nitrogen, creatinine, are all of great analytical significance.

With these aids, the cause and the contributing factors may be discovered; they also offer a definite record of condition and progress. We know there must be a reason for a fluctuating blood pressure or other circulatory signs and symptoms. By weekly or semi-weekly observations, it is possible to find and eliminate the responsible irritating factors which may be related to such foods as coffee, tea, alcohol, tobacco, eggs, chocolate, sweet corn, baked beans, fatty and highly seasoned foods. By eliminating, reducing, or changing the type of

foods, regular examinations will show the progress made toward correction of an impaired circulation.

Obese patients deserve special consideration for reduction in weight. Life insurance statistics show that even a 12 per cent increase in normal weight shortens life expectancy. Obesity invites liver enlargement and possible liver damage, which induces an ascending cholangitis and should be relieved by cholagogues and copious amounts of water. Hepatitis, even in a mild form, burdens the heart, kidneys, and other gladular structures by its impairment of function.

Focal infections may be a contributing factor. A devitalized, loose, or imprisoned tooth, a tooth moving in its socket, or a surrounding pocket are all possible incubators of bacteria. From these foci the invaders find their way into the blood stream and cause continual irritation to the delicate endothelial lining of the arteries. When the toxins involve the joints, muscles, or nerve sheath, this infection is responsible for the resultant rheumatoid condition. It must be remembered that the blood stream is continually carrying these infections. The highly sensitive endothelial cells are the same as those in the eye, and even with the neutralizing effect of the blood some irritation remains to form an atheromatous nucleus and a beginning arteriosclerosis.

Infection of tonsils, tonsil tags, gallbladder, appendix, fallopian tubes and other pelvic areas, especially of a recurrent nature, is a constant source of bacteria. With the present progress in surgical technique, it is a comparatively simple matter to remove these traps of infection even in the cardiovascular patient. An allergy may often be a contributing factor in nasopharyngeal infections. This should not be overlooked. Prophylactics for these infections, added to the present valuable antibiotics, control this incubative area. It is necessary to resort to surgery in an empyema of the maxillary or other sinuses. Oral surgeons have reported frequent unexpected antrum empyemas; therefore, an antero-posterior x-ray of the nasal and accessory sinuses is important to rule out this possibility.

The presence of anoxia is an often neglected consideration. This may be due not alone to insufficient oxygen, but because of air contaminated by smoke and its tar derivatives, carbon monoxide, or "smog," which is highly toxic. Some people are so sensitive that they will complain of a smoke conjunctivitis after being in a smoke-filled room. If this irritation affects the eye, it is reasonable to surmise that it must also cause some arterial irritation, as the smoke laden atmosphere must be inhaled with its deficient amount of oxygen.

The value of uncontaminated air, particularly in the higher altitudes where there is more ozone and an element recently discovered called "aran," is most important to health. High altitudes are a controversial subject in cardiovascular disease. In the observation of many patients, the author has noticed that an improvement follows after these patients have spent a month or more in altitudes from 2,000 to 6,000 feet.

An extreme example was the case of a man weighing 270 pounds and threatened with congestive heart failure. He had been given mercurials, digitalis, and other diuretics to reduce general edema, for six years. He had been hospitalized and placed under oxygen repeatedly during these six years, and following an attack of influenza, he was again advised to spend the greater part of the summer in a hospital under oxygen therapy. He decided to vacation in the mountains at an altitude of 5800 ft. He was unable to walk more than a half block, but after spending a month in this altitude and with the addition of iodine cacodylate injections, his weight was reduced to 190 pounds for the first time in twenty years. He was able to walk a full mile before he left, with less discomfort than he had when walking 100 ft. Myocardial patients living at sea level, on the contrary, are prone to develop edema and other signs of cardiovascular burden.

In the present management of these conditions, the skin has had too little consideration. It is the largest organ of elimination and its many sweat glands often fail

to eliminate the toxins damaging them and burdening the capillary circulation. Heat in its various forms will restore the activity of the sweat glands, relieve congested capillaries, and encourage the skin to normal activity. (A patient highly toxic from tobacco may show a yellow stain with odor of stale smoke on the sweat sheet or blanket.)

Massage is recommended and should be employed regularly and progressively, beginning with a passive massage; with improvement, a deeper massage may be given involving the stripping of the lymphatic circulation. The massages may be followed by medical gymnastics which, with increased activity, prepares the patient for more active physical exercise with less exertion on the heart.

Through the research work of Salisbury more than one hundred years ago, "Salisbury steak" became famous. Through progress in food studies, it has now been generally conceded that lean meats, proteins, and amino acids are the best foods in degenerative disease. The diet should include seafoods of all kinds, whole cereal, dairy food, and all vegetables low in carbohydrate. Copious amounts of water were part of the Salisbury daily diet.

Eggs, chocolate, corn, and baked beans should be restricted to prevent further pollution of the blood stream. These products have a tendency to favor intestinal toxicity. Experiments carried out by Salisbury proved that these foods were the most harmful to mankind. (Corn on the cob eaten in September was found in the colon in February. It was the only cause for a hypertensive condition.)

In 1910, I met one of Salisbury's patients in the East, then hale and hearty at 92 years of age who, before her sixtieth year, had been an invalid with arthritis and Bright's disease. She made a complete recovery under the care of Salisbury for three months and adhered to his diet until the time of her death from pneumonia at the age of 94.

The medication here recommended is an isotonic iodine with colloidal and semi-collodial breakdown products of protein and cacodylate compound, consisting of 10 cc. of 0.2 per cent iodine and 7 grains of highly purified cacodylate per injection.

Iodine has been considered an important element influencing glandular nutrition for over a century. Inhabitants of Iceland have less arteriosclerosis than any other nation; their foods have more iodine content than those in other parts of the world. Thyroid disease is practically unknown there. The thyroid, as the key gland to all the endocrine glands, can offer support only to the extent of its iodine content. Thyroid extract is standardized by the amount of iodine content. The medication recommended here, in its colloidal or glutinous and isotonic form, promotes glandular nutrition without ever having shown a sign of iodism even in the most iodine-sensitive patient.

Iodine alone in the case of a damaged arterial wall is not sufficient to control the spasticity or inflammatory condition of the endothelial cells. Cacodylate, like other arsenicals, must be of highest purity to make it non-irritating, and, in combination with the isotonic iodine solution mentioned, makes a perfect vehicle to desirably affect the blood stream.

Almost immediately following injections of this preparation a more profound desensitization is noticed than that following a sedative or narcotic. The relaxing effect on the capillaries is noticed by the disappearance of cyanosis and the usual clammy, moist skin. This relaxation is also noticed upon awakening from a restful sleep without the "hang-over" usually accompanying sedatives and narcotics.

In critical cases, iodine cacodylate injections can be given daily, or every 12 hours. When improvement is noted, they may be given at longer intervals of every other day, semi-weekly, and then weekly, until the patient is restored to a comparatively normal condition.

This course of therapy is contrary to symptomatic medication, inasmuch as transitory medication must be increased in dosage and frequency, whereas the iodine cacodylate is reduced in frequency. The beneficial effects will be observed in sphygmomanometer, cardiograph, blood chemistry, and blood picture readings. As a rule

the patient may return to his normal habits after three months to a year on this regimen.

It should be stressed that a dramatic improvement may create too much optimism in the patient. Repair of a damaged arterial tree and a possible myocardial infarct necessitates time for repair and restoration of a collateral circulation. In the few recurrent coronary and cerebral accidents that have been noted, such optimism caused the patient to discontinue injections. This mistake should be guarded against as repair of the circulation is time consuming.

The use of iodine cacodylate in this isotonic colloidal solution has no contraindications so far as can be ascertained and, when combined with proper biliary elimination, gives rewarding and enduring results. This is proven by well over 100,000 injections administered during this research and in practice by many in the profession. No other medication should be added in the same syringe at the time of administration. Medication for symptomatic relief is not incompatible when administered separately. Isopropyl or denatured alcohol used for sterilizing needles will change the chemistry of this easily alterable and oxidizable iodine cacodylate compound and should not be used.

The sphygmomanometer, cardiograph, and laboratory findings are the best evidence of the enduring benefit. This has been proven by patients now over 75 and 80 years of age who, 15 and 20 years ago, were cardiovascular invalids and are now able to live more normal lives than they did at that time.

Some of these suggestions may seem controversial, but behind them lie 50 years of study, observation and experience. The therapy is offered as a rational answer to the important subject of degenerative disease.

31 North State Street

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SARCOMA AND ADENOCARCINOMA OF THE SAME UTERUS

—Concluded from page 284

larly shaped cysts. The right ovary is small, opaque and fibrous.

"The right tube shows no gross changes.

"On section the cervix presents several fibrous areas that are not definitely circumscribed.

"MICROSCOPICAL EXAMINATION: Sections of the fundic tumor show it to be a typical adenocarcinoma composed of medium-sized acini or tubules lined with several rows of chromatic cylindrical cells and supported by a small amount of fibrous tissue showing no malignant tendency. The growth is confined to the endometrium and inner part of the myometrium. Sections of two of the fibroids show them to be composed of smooth muscle and fibrous tissue, the former predominating. One of the tumors shows considerable hyaline degeneration.

"The cervix shows fibrosis and slight inflammatory cell infiltration of both the portio vaginalis and endocervix. In one area the mucous membrane of the endocervix is replaced by cellular fibrous tissue containing a number of cervical glands. The deeper part of the cervix shows fibrosis, hyaline degeneration and atrophy of the muscle.

"Both ovaries are atrophic and show no evidence of malignant involvement. The mesovaria are thickened by fibrosis and edema and infiltrated with a few small round cells. The blood vessels show considerable sclerosis.

"Both tubes show fibrosis, edema and degeneration of the musculature."

This woman is now 81—well, active and devoting her time to welfare work.

Résumé: Here we have a patient who at the age of 57 showed a polyp of the cervix undergoing sarcomatous degeneration, and adenocarcinoma of the fundus of the uterus. As a result of prompt and moderately radical surgery, she is now at the age of 81 (24 years after the operation) still active and well.

812 Park Avenue

EDITORIALS

Washington Kremlin



There have been many more or less apt characterizations of compulsory sickness insurance and its goals—socialized medicine, political medicine, nationalized medicine, etc.

But the new Senate Bill 1679, designed to implement the preposterous monstrosity of compulsory sickness insurance, merits a descriptive name *of its own*. The Slave Medicine Bill meets the necessity very well indeed, particularly in so far as the appalling thing in action, administered perhaps by a future Washington Kremlin, in the first stage of an authoritarian set-up, is concerned. But there is a ludicrous aspect to the Bill, considered as a state document, that ought not to be missed. The humorless group (which we suggest be named "Disaster, Incorporated") which has produced this absurd piece of literature (and "gigantic fraud," as the Washington *Post* calls it) has in reality spawned something that is comical in the best tradition of Rube Goldberg.

People have been amused for many years by the cartoonist Rube Goldberg's jerry-built, fantastically conceived contraptions designed to accomplish allegedly laudable purposes. The Slave Medicine Bill is evocative of the same sort of complex nonsense—a top-heavy, creaking mass of weird items, held together precariously by a kind of Scotch tape-like gobbledegook.

The ridiculous hodgepodge just introduced by Murray, Pepper, *et al.* should enjoy dubious fame as exactly the sort of thing that a literary genius would write *as satire*. Such a creation could only be produced by such a genius with his tongue in his cheek or by a political sorcerer of the same type which wrote the Prohibition law. So were it not for the fact that such a suitable name as the Slave Medicine Bill has been proposed—and we second the proposal whole-heartedly—we should be inclined to suggest that the name of the famous cartoonist we have cited be honored.

What Price Politicalized Medicine?

We are authoritatively informed that it cost 2½ cents to print and deliver a penny postcard; that it takes four times as long for payment of veterans' insurance claims as it does for payment of private claims, although the Veterans' Administration employs four times as many workers per policy; that a Government purchase order may call for $10 in paper work although an item may cost less than $10; that the Army requested budget funds for 829,000 tropical uniforms at $129 each and 910 houses for Alaskan personnel at $58,000 each; that tons of obsolete records are kept in steel cabinets at maintenance charges of $29 a year when warehouse storage in cardboard containers would cost $2.15 a year; that two different agencies surveyed sites for a dam on the same river a half mile apart, each survey costing $250,000 although the estimated cost of each had been $75,000; that a reservoir's cost was estimated at $44,000,000 at one time and $132,000,000 at another time.

Queries: A. What would be the cost of a medical bureaucracy? B. Would an 8 per cent pay-roll deduction suffice?

The Slave Medicine Circus

Congresswoman Bosone of Utah has made a highly constructive suggestion regarding legislation for the socialization of medicine. It is that bills under such a system up to $50 would have to be paid by the customers; the Government would take responsibility only at that point. This principle is already established in auto col-

lision insurance.

Such a provision would eliminate the self-pampered and reduce costs which might otherwise tend to ruin the national economy.

Add this to our own suggestion that all reserve funds built up under political medicine be earmarked for sickness insurance and be not available for other purposes, as has been the case under Social Security up to now, with consequently inadequate pensions and other alleged benefits.

A comic note has been injected into the already absurd Social Security situation. The Christian Science Church has asked Congress either to exempt its members, if they so elect, from the health features of the expansion bill, or arrange matters "so that they will receive benefits upon certification of an accredited practitioner of healing by prayer or spiritual means and without medical examination, supervision or treatment." What concerns them mostly is the proposal to add disability insurance to the old-age and survivors' insurance, involving medical examination, which would be contraary to the teachings of their religion and an interference with their constitutional rights to practice their religion freely. It would be funny to see the legislators in conference on this headache generator.

How To Cheapen The Quality Of Medical Care

There is a complaint in England that the Government permitted some private practice to continue. Here we have a picture of what would happen here if compulsory sickness insurance ever goes into effect. The complainants say: "We must have a health service based entirely on socialist principles." That would mean full-time salaried service on the part of all. It would also mean abolition of all private beds in hospitals and nationalization of the drug industry.

The Minister of Health is demanding cuts in hospital budgets by $38,000,000. Here we have an easy guess as to the effect on the quality of medical care rendered under such a political system.

The CHOICE OF DIGITALIS

—Concluded from page 276

high. When these can be marketed more reasonably they will offer the clinician the most reliable preparation and will be used more widely in the treatment of heart failure.

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CONTEMPORARY PROGRESS

MEDICINE

A Liberal Regimen in Diabetes

H. J. John (*American Journal of Medicine*, 5:537, Oct. 1948) describes a liberal regimen employed in the treatment of diabetics with careful control of the insulin dosage. The patient continues the usual diet, omitting all sugar, pastry and soft drinks and restricting the amount of bread to two slices at each meal, or one slice when potato is eaten. In establishing the correct insulin dosage, blood sugar and urine are examined three times a day, before breakfast, lunch and dinner. On the first day all three levels are usually quite high, and 20 units of protamine zinc insulin are given after the evening check up. The following morning, the fasting blood sugar is checked and 20 units of protamine zinc insulation given. On subsequent days if the fasting blood sugar is normal, the noon blood sugar somewhat elevated, but the evening blood sugar normal, the dosage of insulin is considered adequate. If the fasting blood sugar is normal, but both the noon and the evening blood sugar is elevated, some regular insulin is given in the morning with the protamine zinc insulin. If the fasting blood sugar does not become normal with the dosage of insulin given, the dosage is increased by 5 units until the fasting blood sugar is brought to normal and is maintained at this level unless insulin reactions occur; if a reaction occurs the dosage is reduced by 5 units. Subsequent check-ups determine whether regular insulin should be added to the morning protamine zinc insulin. During this period of adjustment, the patient is instructed in self administration of insulin, so that by the time the routine is adjusted and the fasting blood sugar is maintained at a normal level, the patient is "on his own" with subsequent check-ups by the physician as necessary. Fourteen cases are reported in which this plan of treatment was successfully employed.

COMMENT

This study became necessary because of lack of facilities to treat these patients during the war. This type of ambulatory treatment is effective in many cases of diabetes. In the older patients many do well on such a diet without insulin. Of course, insulin is better for them but not every old person will accept it. John's diet is simple and easily followed. It is much more acceptable to many patients because there is no weighing of food. M.W.T.

The Effect of Liver Extract and Vitamin B_{12} on the Mucous Membrane Lesions of Macrocytic Anemia

R. E. Stone and T. D. Spies (*Journal of Laboratory and Clinical Medicine*, 33: 1019, Aug. 1948) have found that folic acid and thymine—two compounds that produce a hematologic response in certain types of macrocytic anemia—are ineffective in the treatment of the severe mucous membrane lesions of pernicious anemia. The mucous membrane lesions show a characteristic fiery red appearance and usually are very painful. These lesions are found only in true pernicious anemia with gastric achlorhydria and in the authors' cases have been associated with signs of subacute combined degeneration of the spinal cord. The administration of liver extract by injection brought about prompt improvement in these mucous membrane lesions in all cases.

Recently, since vitamin B_{12} has become available, it has been found that intramuscular injections of this vitamin brought about similar prompt relief of the mucous membrane lesions in the 2 cases in which it has been employed. These findings give further support to the authors' previous findings that neither folic acid nor thymine is "a complete treatment" for pernicious anemia.

COMMENT

I have found vitamin B_{12} effective in the treatment of macrocytic anemia and it is especially useful in treating combined system disease. Many persons are allergic to liver extract and are able to take vitamin B_{12}. This is now available under the trade name Cobione. It comes in ampules of ten micrograms each. With this medication mouth lesions improve. Taste is restored in many cases. The present dose of Cobione is ten or twenty micrograms a week, given subcutaneously. It is not effective by mouth in 50 microgram doses. It should not be forgotten that 15 units of the concentrated liver extract probably contain 20 micrograms of B_{12} per cc. Personally I do not see much need for any liver preparation except this concentrated one. In some cases I have been fortifying liver extract with vitaminB_{12} with good results M.W.T.

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Vitamin $_{12}$ and Subacute Combined Degeneration of the Spinal Cord

R. E. Stone and T. D. Spies *(Revue internationale de Vitaminologie,* 22:248, report the treatment of 3 patients with pernicious anemia with vitamin B_{12}. These patients were chosen for the first trial of vitamin B_{12} in the treatment of pernicious anemia because they had been under observation for a long time, through several periods of therapy and relapse, and the development of their neurological changes had been studied. In each case there were early but definite signs and symptoms of subacute combined degeneration of the spinal cord. Under treatment with vitamin B_{12} given parenterally there was definite improvement in the symptoms in all 3 cases, and "significant reversal" of some of the abnormal physical signs in 2 cases. One case is reported in detail.

COMMENT

Patients with subacute degeneration of the cord should have vitamin B_{12} in large doses. Probably 20 micrograms twice weekly until 500-600 micrograms have been given is necessary; then a maintenance dose of 20 micrograms a week is advised. These doses may change as more is known about the drug. M.W.T.

One Year's Treatment of Non-Specific Ulcerative Colitis with Intestinal Extract

Benjamin Haskell and M. H. F. Friedman *(American Journal of Surgery,* 76: 709, Dec. 1948) report the treatment of 27 cases of non-specific ulcerative colitis with extract of the mucosa of hog's small intestine. A larger series of patients has been treated with this same substance, but only the 27 patients have been followed up for a year or more. The diagnosis in each case was established by the clinical history, roentgenologic and sigmoidoscopic examination, examination of the stools, and repeated cultures of the stools, which

were negative for pathogenic organisms. This treatment was employed on the hypothesis that non-specific colitis is due to the absence or deficiency of some intrinsic factor that is normally present in the intestinal mucosa. On beginning treatment 50 to 100 Gm. of the extract (in powder or granular form) were given daily in divided doses. This dosage was continued for several months, and was reduced when improvement was well marked. Definite symptomatic improvement and sigmoidoscopic signs of improvement were obtained in 24 of the 27 cases. The two most important signs of improvement were diminution in the number of bowel movements and disappearance of gross blood from the stools; the mucus content of the stools was also reduced; improvement began in two to five weeks after treatment was started, occurring most promptly in patients with symptoms of less than two years' duration. To maintain improvement, treatment had to be continued, as withdrawal of treatment or administration of a placebo resulted in a relapse; remission of symptoms followed the resumption of treatment with the intestinal extract.

COMMENT

This is an interesting study which should be followed. ***M.W.T.***

Rapid Healing of Peptic Ulcers in Patients Receiving Fresh Cabbage Juice

Garnett Cheny (*California Medicine*, 70:10, Jan. 1949) reports the treatment of 13 patients with peptic ulcer with raw cabbage juice. As a rule, fresh cabbage juice was prepared twice daily; for the last 3 patients treated fresh celery juice was added to the cabbage juice, as the celery juice makes the drink more palatable, and has been found to contain the anti-peptic ulcer factor. A bland diet was given in which all foods (including the milk) were cooked; this was done to eliminate possible food sources of the anti-peptic ulcer factor, which is rapidly destroyed by heating. The cabbage juice was kept in the ice box and served to the patient well chilled, 200 cc. five times a day. If patients developed mild abdominal distress or constipation, milk of magnesia was given. No other routine treatment was used. Patients were kept at bed rest until pain was relieved and then were allowed up and about as they desired. X-ray examination was made just prior to beginning treatment and again after six to nine days of therapy. In the 7 cases of duodenal ulcer treated, the average healing time of the ulcer crater was 10.4 days, the longest healing time, 23 days. In the 6 cases of gastric ulcer the average healing time of the ulcer crater was 7.3 days, the longest healing time 9 days. In the 6 cases of gastric ulcer, gastroscopic examination confirmed the x-ray evidence of healing of the ulcer.

COMMENT

It is a question as to what constitutes the anti-peptic ulcer factor. Is vitamin C the beneficial item in the cabbage and celery juice? ***M.W.T.***

Spinal Nerve Root Pain (Radiculitis) Simulating Coronary Occlusion

David Davis (*American Heart Journal*, 35:70, Jan. 1948) reports 10 cases in which symptoms leading to a diagnosis of coronary artery disease were found to be due, not to coronary disease, but to dorsal spine radiculitis. This group of 10 patients, he states, is representative of a total of 56 patients with a similar syndrome seen in 1946. The pain in these cases, which occurred in attacks, was often confined to the substernal and precordial regions, and was severe and prolonged; in some cases it radiated to the left upper extremity and occasionally to the neck. A careful history in these cases often showed characteristics of the radicular syndrome. Attacks often occurred at night when the patient was in bed; or after certain movements of the spine, such as bending or turning from side to side; or after such acts as coughing, sneezing or straining at stool. In some cases the history showed that the attacks of pain had sometimes occurred when the patient was walking, but it did not always cease as soon as the

patient rested; in other cases the pain was relieved when the patient stopped, straightened up, and threw the shoulders back. Diagnosis of dorsal spine radiculitis could be made in some cases by reproducing typical attacks of pain by pressure on the dorsal vertebrae. Other signs of radiculitis were present in many of the patients, such as poor posture, spasm of the posterior cervical muscles, and tenderness in the region of the costochondral junction of the ribs and sternum. In cases in which the substernal pain is due to dorsal spine radiculitis, the electrocardiogram is normal, and x-ray study of the spine usually shows hypertrophic changes. There is striking response to orthopedic treatment, especially manipulation and traction of the cervicodorsal spine. The author emphasizes the importance of recognizing this syndrome, and the possibility of attacks of substernal pain being due to it should be borne in mind in the diagnosis of supposed coronary artery disease. It should also be recognized that coronary artery disease and hypertrophic arthritis of the spine with radicular symptoms may coexist, since "both are common with advancing age."

COMMENT

One must be on guard constantly not to mistake radiculitis for coronary artery disease. Too often a diagnosis of this is made merely because the chest pain is substernal. The patient, too, becomes uneasy about the diagnosis since he hears so much about chest pain and coronary thrombosis.

In the older age group especially one must think of radiculitis. However, it is not uncommon in war veterans. The pain may be made worse on exertion and may look like heart disease.

In this line of thinking one might extend it a bit to include chest pain due to the chest muscles—so-called fibrositis. This gives somewhat the picture of arthritis of the spine but the trouble is in the chest muscles. There are trigger points, especially in the region of the pectoralis major and minor muscles. Also the infraspinatus may be involved. Relief follows procaine infiltration of the trigger points.

M.W.T.

PEDIATRICS

Streptomycin in the Treatment of Hemophilus Influenzae Laryngotracheobronchitis

C. D. Terrell and C. S. Hoar (*Journal of Pediatrics*, 34:139, Feb. 1949) report 4 cases of laryngotracheobronchitis in infants nine weeks to six months of age. All of these children were "desperately ill" with marked respiratory distress when admitted to the hospital. *H. influenzae* was found in the throat cultures in all these cases. Streptomycin was given in a dosage of 50 to 100 mg. intramuscularly every three hours. There was definite improvement within twelve hours after the first injection of streptomycin, and respiration was normal in seventy-two hours. A few weeks before the admission of the first of this series of cases, 3 children six months to one year of age with moderately severe laryngotracheitis due to *H. influenzae* had been treated early in the course of the disease with sterptomycin and been discharged from the hospital within four days. As the authors have found it impossible to make a definite diagnosis of *H. influenzae* laryngotracheitis on the basis of clinical findings alone, and since the mortality of the disease in infants is high and streptomycin treatment is effective, they now make it a practice to give streptomycin to infants showing "real" respiratory distress from tracheobronchitis on admission to the hospital, and continue the drug until the throat culture is reported. The drug is then discontinued unless the culture shows a streptomycin-susceptible organism. This plan has given good results in a number of cases, with no ill effects from streptomycin therapy. In 2 cases in which cultures showed *B. friedländer*, streptomycin was very effective.

COMMENT

This procedure has been followed in hospitals for contagious disease with excellent results. As most of these patients are admitted in great ditress as emergencis it is unwise to wait for a cultural diagnosis. Streptomycin should be given immediately upon admission and the culture work done later. As in years past children admitted for ostensible diphtheritic laryngitis were given antitoxin, without a culture, so today when most children have been immunized against diphtheria streptomycin should be administered and the culture work done later. ***H.E.U.***

Chronic Appendicitis and Mesenteric Adenitis in Children

D. H. Manfredi (*Archives of Pediatrics*, 65:591, Nov. 1948) reports 480 cases of chronic appendicitis and chronic mesenteric adenitis in children treated at the Children's Surgical Service of Bellevue Hospital (New York) in 1920 to 1947, inclusive. Only 200 of these patients could be followed up after operation; this lower than usual percentage of cases followed up is due in part to the shifting Bellevue population, and in part to the reduction in the medical personnel and hospital staff during and after the war. The highest incidence of chronic appendicitis and mesenteric adenitis in this series was before puberty; over 50 per cent of patients were eight to eleven years of age. This corresponds with the maximum growth of mesenteric lymph nodes in children before puberty. The symptoms of chronic appendicitis and mesenteric adenitis were much the same, and in some cases differential diagnosis between the two conditions could not be made. Pain was the chief symptom, which was of the intermittent or "crampy" type; vomiting was not always associated with pain; in some cases the temperature was normal, in others there was low grade fever. Physical examination showed slight tenderness on deep pressure over the right lower quadrant. Many of these children were undernourished. When the diagnosis of chronic appendicitis or chronic mesenteric lymphadenitis was established, appendectomy was done. In 2 cases an acutely inflamed appendix was found and removed. Of the 200 cases followed up, 33 had less than three months care in the clinic. In 114 cases of chronic appendicitis, results were satisfactory in 97 cases; and in 8 other cases, satisfactory results were obtained before the case was closed, leaving only 9 cases with permanently unsatisfactory results. In 53 cases of chronic mesenteric adenitis, results were satisfactory in 43 cases, and in 3 other cases were later considered satisfactory, so that unsatisfactory results were obtained in only 7 cases. Satisfactory results included not only relief of the abdominal symptoms but improvement in general health and nutritional status. On the basis of these results appendectomy is considered to be the treatment of choice in cases of this type, and it also avoids the danger of overlooking an acutely inflamed appendix.

COMMENT

The sugical and medical viewpoints concerning abdominal pain in children are quite different. Most of the acute abdominal pains of childhood accompany an acute upper respiratory infection. The throat is beyond the domain of the surgeon. As a result many children are operated upon by the surgeon when they would not be if left to the discretion of the medical man or pediatrician. Cases referred to the surgeon for operation by the pediatrician usually have appendicitis, not simply mesenteric adenitis. ***H.E.U.***

Disturbance of Water and Electrolytes in Infantile Diarrhea

D. C. Darrow and associates (*Pediatrics*, 3:129, Feb. 1949) report metabolic balance studies on 7 infants with moderate or severe diarrhea, with some data on an 8th patient, which confirm the findings of a previous study that the loss of body potassium is a striking feature of infantile diarrhea. These studies have shown that intracellular Na is slightly above normal during dehydration in many cases; that the administration of NaCl restores all deficits of Na and Cl without the use of $NaHCO_3$; that acidosis is due chiefly to the loss of K which results in transfer of Na from extracellular fluid into the cells during dehydration; and that fluids used to restore water

and electrolytes in infantile diarrhea should contain potassium as well as sodium and chloride. In practice the authors have used a solution containing Na, 122; Cl, 104; K, 35 and HCO_3 53 mM per liter. During the first day of treatment the parenteral administration of 60 to 90 ml. per kg. of this solution replaces most of the deficit of extracellular water and electrolytes, but only partially restores the potassium deficit. After the first day, this electrolyte solution can usually be given by mouth in 5 per cent glucose (1 part of the electrolyte solution to 2 parts glcose solution); 150 ml. per kg. of this mixture is usually sufficient to provide for water and electrolyte expenditure and replacement. When feeding of a milk mixture is begun, it should be diluted with water to provide 150 ml. per kg. daily at first, and this amount should be increased gradually; about 1 Gm. of KCl should be added to the food until the milk can be increased to provide 70 calories per kg. daily. When adequate calories are provided by the milk, the intake of potassium is sufficient unless the stools remain voluminous and watery. When food can be taken, it has been found that retention of nitrogen is satisfactory; positive nitrogen balances were often obtained on intakes of nitrogen equivalent to about 1.4 gm. protein daily, even if the caloric intake did not entirely cover caloric expenditure. In treating over 250 cases of infantile diarrhea by the method outlined, the mortality has been reduced to less than 5 per cent in infants under one year of age. All the infants that died were "severely undernourished"; none showed either alkalosis or acidosis at the time of death.

COMMENT

Dr. Darrow's work at the New Haven Hospital has formed a valuable addition to our knowledge of the chemistry attending an acute diarrhea. In a relatively short time Darrow's Solution, which is dispensed as a palatable granular powder, may be made available for use in the home. To use a personal statement of Doctor Darrow: "If the solution is used in the early stage of diarrhea the child will probably not need hospitalization." ***H.E.U.***

Whooping Cough Treated with Pertussis Immune Serum (Human)

P. F. Lucchesi and A. C. La Boccetta (*American Journal of Diseases of Children*, 77:15, Jan. 1949) report the use of pertussis immune serum (human) in the treatment of 26 cases of whooping cough in children twelve months of age and younger, with 26 controls of the same age group not given the serum. This age group was selected for study because whooping cough is severest and the mortality highest in children under one year of age. The patients who were given serum also were given the same treatment as the patients in the control group, which included sulfa drugs or penicillin for bacterial complications, oxygen and a mixture of 5 per cent carbon dioxide and 95 per cent oxygen for cyanosis. The serum employed was prepared by pooling the bloods of a number of healthy adults who had had whooping cough in childhood and whose protective substances had been further increased by repeated courses of phase I pertussis vaccine. As a rule serum was given intravenously; the intitial dose was 50 to 100 cc., according to the condition of the patient; daily injections of 50 cc. until there was clinical improvement or five doses had been given; in 9 cases, the injections were given every other day to extend the treatment over a longer period of time. There was no dramatic change in the course of the disease in the patients who were given serum. Patients with uncomplicated whooping cough treated with serum in the first week of the disease showed a more regular decline in the frequency of paroxysms than the controls. This difference was not so definite in cases in which treatment was started in the second week of the disease, or if bronchopneumonia was present. There was no evidence of any untoward reaction to the serum; the temperature remained elevated longer in the serum-treated group than in the control group, although the incidence of bacterial complications was approximately the same in the two groups; this suggests the possibility of a febrile reaction. There was only one death in the series, which occurred in the serum-treated

group in an infant eight months old who was admitted to the hospital on the fourteenth day of the disease with whooping cough and bronchopneumonia. The authors note that it is difficult to evaluate the effect of any method of treatment in a disease "as unpredictable and as variable" as whooping cough.

COMMENT

This is a fair article and represents the views of others who have used the serum in the hope of finding something to relieve children of the danger of the paroxysms in the early years of life. Fortunately most infants are now immunized against pertussis and the average physician encounters fewer and fewer patients suffering from pertussis in the first four years of life when cerebral hemorrhage, bronchopneumonia and the later development of personality changes result. Proper immunization should protect the child for at least four years and a stimulating dose at this time may prevent the child from having the disease. If protected in early life each contact with the disease in his school days will produce further and lasting immunity. H.E.U.

STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS

—Concluded from page 252

At the end of six months, examinations for tubercle bacilli were negative in eight S cases and in two C cases. The best results in S cases were seen in the first months of treatment.

While stressing the good results in the streptomycin group, it is important to note that no clinical "cures" were effected, and that only 15 per cent were bacteriologically negative (to direct examination and culture) at the end of six months; and secondly, that this trial presents at the time of writing only a short-term evaluation. The major improvement in patients treated with streptomycin was seen in the first two to three months; in the latter half of the six-month period numbers of them began to deteriorate. Thus 21 S patients deteriorated radiologically in the fifth and six months, and four of them died. Streptomycin therapy had been stopped at the end of four months, and it is natural to ask whether the deterioration is attributable to stoppage of treatment. This seems unlikely for the majority; most had begun to deteriorate radiologically before the end of four months; only six of the 21 had improved radiologically throughout the four months, and two of these six had deteriorated clinically.

Results of tests for streptomycin sensitivity of infecting strains are available for 41 of the 55 cases treated with streptomycin. In 35 cases tests revealed *in-vitro* resistance from 32 to over 8,000 times that of the original strain of the standard H37Rv. In most cases streptomycin resistance emerged in the second month of treatment. It seems probable that streptomycin resistance is responsible for much of the deterioration seen in S cases after first improvement.

Apart from demonstrating in a final and unquestionable manner the value of streptomycin, the trial shows that cooperative medical work on an important scale can be carried out successfully in Britain, and that it is possible to use meager resources in an investigation involving human beings in such a way as to get a clear answer fairly rapidly. Streptomycin is not the final answer to the treatment of tuberculosis, and it is possible that soon much more effective drugs may be found.

Life Insurance Medical Research Fund

Life Insurance companies of the United States and Canada will contribute $680,000 during the coming year for the support of heart disease research.

The awards raise to more than $2,500,000 the amount contributed by the companies since the Fund was started late in 1945.

Medical BOOK NEWS

Edited by
ANDREW M. BABEY, M.D.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn 16, N. Y. When books are sent to us with requests for review, selections for that purpose are promptly made.



PIERRE BRETONNEAU
1778 ~ 1862

Classical Quotations

● Far from entering into these distinctions and insisting upon the difference of the inflammatory processes of the mucous membranes, I undertake now to prove the evidence of facts that scorbutic gangrene of the gums, croup and malignant angina are nothing but a single and identical type of inflammation.

PIERRE BRETONNEAU

Des inflammations speciales du tissu muqueux, et en particular de la diphtherite, ou inflammation pelliculaire, Paris, Crevot, 1826.

Psychiatry

Psychiatry in General Practice. By Melvin W. Thorner, M.D. Philadelphia, W. B. Saunders Co., [c. 1948]. 8vo. 659 pages. Cloth, $8.00.

The book is written with the objective of presenting psychiatry to the General Practitioner in such a manner as to make it simple and yet instructive and thorough, avoiding language and other technical difficulties. The author describes mental illness as personality deviations, and illustrates his points by case histories, thus making the patient the real teacher of the subject. It is a good book, which deals in a practical and attractive and interesting manner with the various aspects of psychiatry, and in a manner that will not only arouse but also hold the interest of the average general practitioner, and will serve as a valuable book for the average medical student. It is highly recommended.

IRVING J. SANDS

Our Lay Colleagues

Discoverers for Medicine. By William H. Woglom, M.D. New Haven, Yale University Press. [c. 1949]. 8vo, 229 pages, illustrated. Cloth, $3.75.

This is fascinating lore concerning the notable medical discoveries made by laymen. The discoveries in question have to do with such vital matters as blood pressure, respiration, the laryngeal mirror, the eustachian tube, eyeglasses and spectacles, the itch, quinine, phagocytosis, x-rays, heredity, digitalis, milk sickness, and vaccination. The work is well illsutrated. It is a humbling thought that some of the most important contributions to medicine have emanated from nonprofessional brains. Odd, unexpected and amazing facts emerge from the narrative. We can think of no more entertaining and enlightening reading for the doctor at this time than this book by a widely cultured colleague especially distinguished for his work in the field of cancer research.

ARTHUR C. JACOBSON

Acute Abdomen

Diagnostico Clinico y Patogenico del Abdomen Agudo. By Prof. Dr. Francisco Diez Rodriguez. 2nd edition. Barcelona, J. M. Massó, [c. 1947]. 8vo. 214 pages, illustrated. (Estudios Monograficos de Investigacion Medica).

The author, who is professor of Surgery at the University of Salamanca, states that nothing new will be found in his text and adds that it is simply a methodical recapitulation of pertinent facts necessary for the novice in the study of the acute abdomen with additional personal observations from his 40 years of teaching.

EVERARDO GOYANES

—Continued on following page

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MEDICAL BOOK NEWS

—Continued from preceding page

Psychophysiology

Les Facteurs Vasculoires et Endocriniens de l'Affectivité. By Dr. A.M. Paul Abely, Alain Assailly and Bernard Laine. Paris, France, L'Expansion Scientifique Française, [1948]. 8vo. 190 pages.

This is a contribution in the field of psychophysiology. The relation between the instinctive emotions, egotism, love, hate, sympathy, antipathy, rage, desire, pleasure, pain, anguish and jealousy and affective thought is discussed. By the latter is meant moral, esthetic, social, familial, religious and intellectual sentiments.

Both clinical evidence in the field of endocrinology and experimental evidence are presented to show that the instinctive emotions are related to the acidophilic cells of the hypophysis and that affective thought is dependent upon the basophilic cells. An excess of basophilic hormones in the cerebral circulation will produce vasodilation in the cortex and result in increase in affective thought and consequent melancholia. An excess of acidophilic hormones will cause cortical vasoconstriction, a lessening of affective thought and the resurgence of instinctive impulses—a maniacal state. This work contains interesting ideas and appears sound.

EDWIN P. MAYNARD, JR.

Obesity

Overweight is Curable. By Wilfred Dorfman, M.D. & Doris Johnson, M.S. New York, Macmillan Company, [c. 1948]. 8vo. 160 pages. Cloth, $2.75.

Overweight is Curable is particularly timely in these days when obesity is recognized as a detriment to longevity and as an adjuvant to cardiorenal diseases.

Overweight is Curable is clearly written and from its intelligible contents one can steer a clear course to proper healthy and adequate weight reduction.

This book is for the lay reader and is an honest, clear exposition of the causes, effects and adequate treatment of obesity.

SAMUEL G. SLO-BODKIN

—Concluded on page 302



DR. VERRIE WYSE

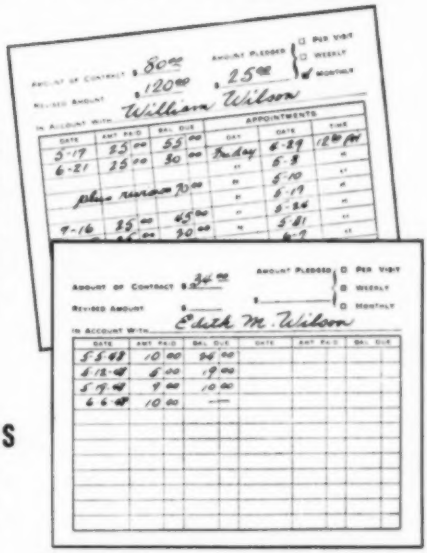
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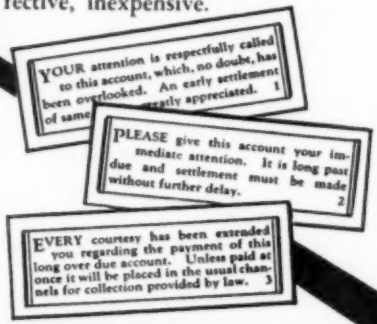
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MEDICAL BOOK NEWS

—Concluded from page 300

Bacteriology

Zinsser's Textbook of Bacteriology. The Application of Bacteriology and Immunology to the Diagnosis, Specific Therapy and Prevention of Infectious Diseases for Students and Practitioners of Medicine and Public Health. Revised by David T. Smith, M.D., Donald S. Martin, M.D., Norman F. Conant, Ph.D., *et al.* 9th Edition. New York, Appleton-Century-Crofts, [c. 1948]. 8vo. 992 pages, illustrated. Cloth, $10.00.

This new edition of an old and standard textbook will be welcomed by all students and teachers of Bacteriology.

As they state in their preface, Smith and Martin have taken pains to retain the basic approach to the science that characterized the old Hiss and Zinsser and the more recent Zinsser and Bayne-Jones. Like their predecessors, they emphasize not only the biological characteristics of the organisms, but also the reactions of the living tissues to the bacteria and their products.

The sections on bacterial metabolism, immunology, fungus and viral diseases have been rewritten and enlarged. All chapters have been brought up to date. Especial stress has been placed upon the public health aspects of the specific infections.

ARNOLD H. EGGERTH

History

Fielding H. Garrison. A Biography. By Solomon R. Kagan, M.D. Boston, Medico-Historical Pr., [c. 1948]. 8vo. 104 pages, illustrated. Cloth, $4.00.

This short biography of Dr. Fielding H. Garrison was written to supplement the author's previous publication, *Life and Letters of Fielding H. Garrison,* issued in 1938. It covers additional data on certain aspects of his career, his family background, and his early life, which were not included in the previous work. Dr. Garrison was probably the leading medical historian of his day and any information on the life and work of so outstanding a character should prove of interest to the medical profession and laity alike.

WESLEY DRAPER



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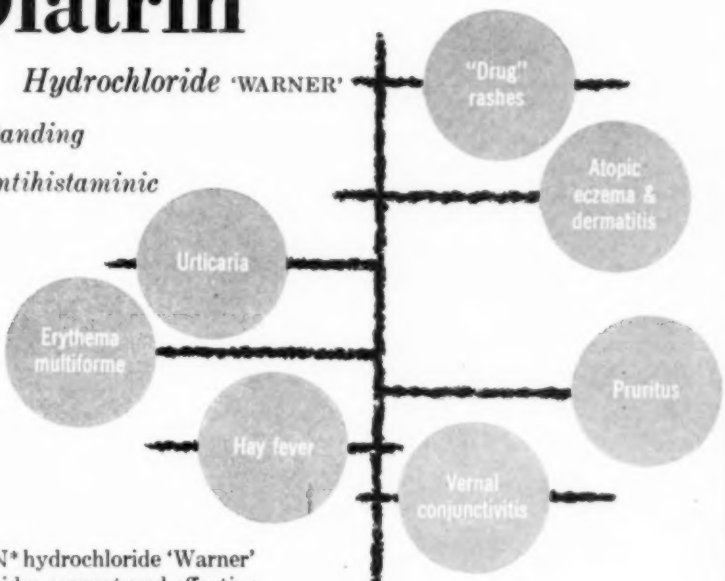
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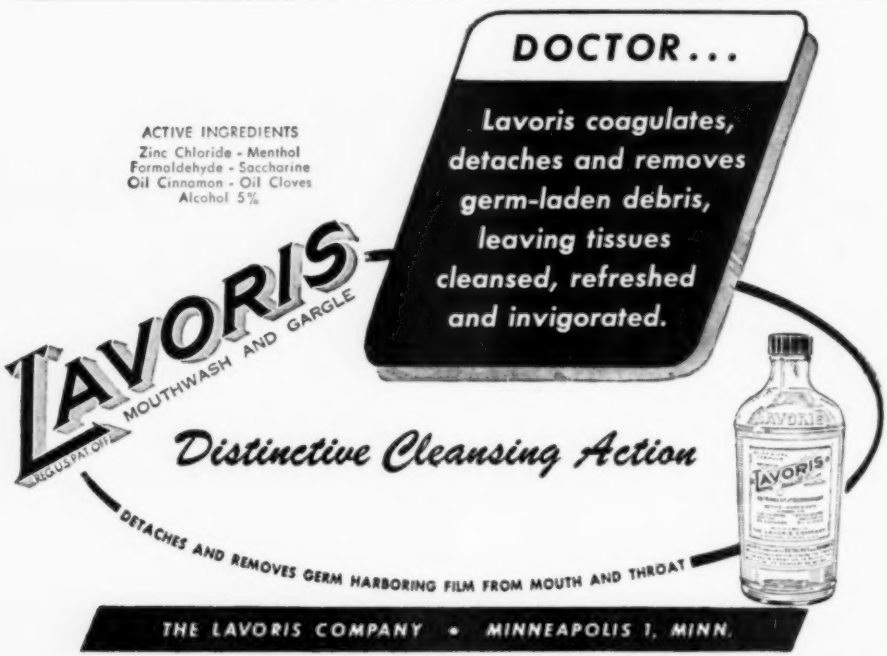
Modern THERAPEUTICS

Ascrobic Acid and Histidine Treatment of Arteriosclerosis Obliterans

A series of 25 patients were treated with oral or parenteral ascorbic acid and histidine. The patients had arteriosclerosis obliterans and were admitted either with gangrenous changes in the lower extremities or with symptoms indicating imminent gangrene. For comparison in this study the patients were selected with all or most of the symptoms in one lower extremity. Thirteen patients received oral therapy consisting of 400 mg. of ascorbic acid and 2 Gm. of histidine three times a day. Parenteral therapy in 12 patients consisted of a 5 cc. ampul of 4 per cent histidine in water plus 100 mg. of sodium ascorbate every 6 hours and 600 mg. of ascorbic acid orally each day. Friedell, Drucker, and Pickett, writing in *J.A.M.A.* (138: 1036 (Dec. 4, 1948)) stated that in addition to clinical and laboratory tests all of the patients were given circulation studies with radioactive phosphorus as the indicator. They found that the two drugs may equalize the circulation in the extremities and the circulatory function toward a normal state, as shown by the equalization of radioactive phosphorus deposition.

Parenterally administered histidine and ascorbic acid relieved the pain in a majority of cases while oral administration gave relief in less than half. Either route of administration of the drugs improved the objective signs in selected cases and may hasten demarcation of gangrene but will not restore gangrenous tissue to viability. The author recommended that the

—Continued on page 54a





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—Continued from page 52a

drugs be given parenterally until relief of pain is obtained and then orally during the rest of the treatment. There were no untoward effects from administration of the drugs.

Ointment for Topical Anesthesia

For surface anesthesia on the broken and the intact skin it has been found that the long chain para-aminobenzoate ester, such as the amyl ester, has greater anesthetic value but less solubility and less toxicity than the short chain ester as exemplified by the ethyl ester. Therefore, Combes and Saperstein reported in *N. Y. St. J. Med. (48:2599 (Dec. 1948))* that a combination of these two esters provided the rapid anesthesia from the ethyl ester and a more effective and prolonged anesthesia from the amyl ester. There were 105 patients with anogenital pruritus and miscellaneous dermatosis treated by topical application with an ointment composed of amyl para-aminobenzoate, 0.7 per cent; ethyl para-aminobenzoate, 0.2 per cent; sodium propionate, 2 per cent; and cod liver oil, 20.0 per cent. This ointment, known as Ultracain Ointment, did not cause sensitization because of the low concentration of the esters. Only 4 patients developed a dermatitis from the use of the ointment. The relief of pain was gratifying. The cutaneous anesthesia was more effective when the skin was broken.

Use of Penicillin in Diphtheria

Penicillin was administered to 65 patients with acute faucial diphtheria in amounts up to 240,000 units a day intramuscularly. Children under 4 years received ⅓ and those between 5 and 10 received ⅔ the adult dose. Twenty-six of 37 receiving a 3-day treatment and 23 of 28 receiving a 6-day treatment were negative for *Corynebacterium diphtheriae* 4 days after the end

—Continued on page 56a

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A. Lamp in non-shatterable capsule.
B. Extra flange on cartridge lamp permits grasping and easy removal.
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Urinary pH No Problem *with*



MANDELAMINE

Urinary Antiseptic of Choice

MANDELAMINE* therapy is simple; it requires no complicated regimen involving adjuvant acidifying or alkalinizing agents to enhance efficacy or reduce toxicity.

Carroll and Allen,[1] reporting the results of a clinical study comprising 200 cases, write:

> "The administration of Mandelamine maintained an acid urine without dietary restriction or other drug therapy, excepting in those cases in which urea-splitting organisms were present."

MANDELAMINE'S effectiveness in both acute and chronic cases of urinary infection and its remarkable freedom from toxic reactions further commend it as the urinary antiseptic of choice.

SUPPLIED: Enteric-coated tablets of 0.25 Gm. (3¾ gr.) each, bottles of 120, 500, and 1,000.

1. Carroll, G., and Allen, N. H.: J. Urol. 55: 674 (1946).

*MANDELAMINE is the registered trademark of Nepera Chemical Co., Inc., for its brand of Hexydaline (methenamine mandelate).

6 OUTSTANDING FEATURES

1. No gastric upset
2. No dietary or fluid regulation
3. No supplementary acidification (except when urea-splitting organisms occur)
4. Wide antibacterial range
5. No danger of drug-fastness
6. Simplicity of regimen—3 or 4 tablets, t.i.d.

NEPERA CHEMICAL CO., INC.
Manufacturing Chemists
NEPERA PARK • YONKERS 2, N.Y.

—Continued from page 54a

of treatment. The Public Health Service report in *Lancet* (255:517 (Oct. 2, 1948)) also stated that the administration of 500,000 units of penicillin twice a day for 3 days to 31 persistent diphtheria carriers resulted in a rapid disappearance of the organisms from the throat of 13. There was no increase in resistance to penicillin by the strains of *C. diphtheriae* isolated from the patients in whom treatment was unsuccessful.

Effect of Streptomycin and Potassium Iodide on Tuberculosis In Guinea Pigs

Since potassium iodide is known to cause tubercle bacilli to appear in the sputum of pulmonary tuberculosis patients when they had been absent previously Woody and Avery reported in *Science* (108:501 (Nov. 5, 1948)) a series of tests to determine the combined effect of streptomycin and potassium iodide. The first tests were performed on four groups of guinea pigs. One group served as controls and the other three were treated, respectively, with potassium alone, streptomycin alone, and with both potassium iodide and streptomycin. Treatment was begun 21 days after inoculation with tubercle bacilli. The dosage of potassium iodide was based upon 80 mg. per Kg. of body weight per day and was given by stomach tube. Streptomycin was given on the basis of 12,500 micrograms per Kg. of body weight per day and was given intramuscularly. All animals were killed and autopsied. The controls and KI treated guinea pigs showed heavy tuberculous infections of all the viscera. In the streptomycin group half the animals showed infections in the organs while in the streptomycin-KI treated group there was no infection in the organs.

In another series of tests three groups of guinea pigs were used. One group

—Continued on page 58a

Evidence accumulates*...

in support of T-BARDRIN (ANGIER)

In a series exceeding 150 cases of bronchial asthma and nasal allergy recently concluded, findings enthusiastically confirm the effectiveness of T-Bardrin therapy through the rectal route.

FORMULA

Each T-Bardrin Suppository contains:

Pentobarbital sodium	0.05 gm.
Phenobarbital sodium	0.05 gm.
(Warning: may be habit forming)	
Theophylline	0.40 gm.
Ephedrine hydrochloride	0.03 gm.
Benzocaine	0.06 gm.

(In a cocoa butter base)

Highlights of report—

Only the most difficult cases were selected for treatment.

Efficacy in children was dramatic with 93% response to medication. With first suppository, symptoms disappeared in a few minutes and most patients remained symptom-free for from one to three days.

Marked response was shown in 75% of adult cases in whom response to other medication was transitory or lacking.

No untoward reactions were noted among the entire series.

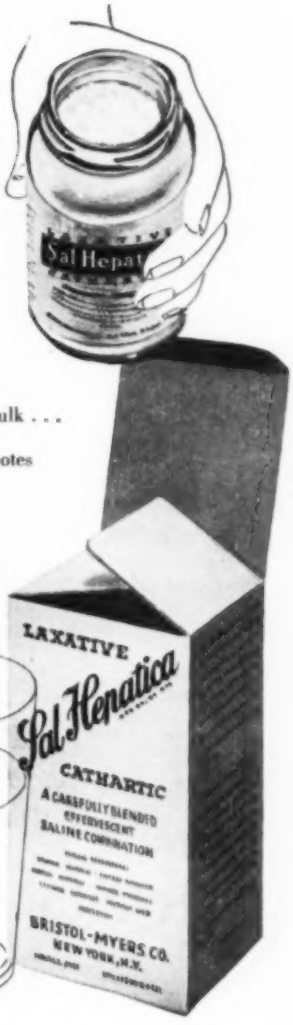
*To be published 1949 (author's name on request)

SAMPLES AND LITERATURE available when requested on professional letterhead.

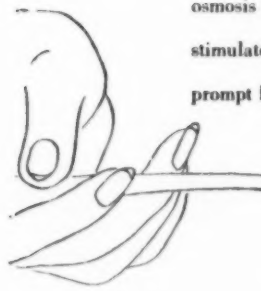
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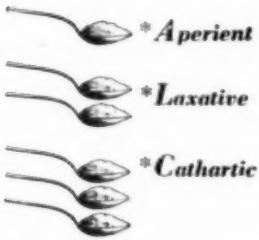
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Gentle
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Prompt



A pleasant, effervescent saline laxative which acts by osmosis to produce soft fluid bulk . . . stimulates peristalsis . . . promotes prompt but gentle evacuation.





*Average dose

Product of BRISTOL-MYERS • 19 West 50th Street, New York 20, N. Y.

—Continued from page 56a

acted as controls, one was treated with streptomycin alone, and the third was treated with streptomycin and KI. The dosage of streptomycin was increased three times. Treatment was begun 4 weeks after inoculation and continued for 5 weeks. At the end of 12 weeks the mortality rate stood at 100 per cent for the controls, 46.1 per cent for the streptomycin group, and 14.3 per cent for the streptomycin-KI group.

The authors reported that clinical trials were in progress.

Penicillin Tablets for Gonorrhea Prophylaxis

To test the possibility that tablets of penicillin taken a few hours after exposure would prevent the development of gonorrhea a study was performed on a group of about 350 naval personnel. The men were divided into two equal groups. One group received 100,000 units of penicillin taken as a peroral tablet upon return from liberty. The control group received a placebo tablet. During 24 weeks the infection rate in the control group was 11.9 cases of gonorrhea per 1,000 liberties or 508 cases per 1,000 men per year. Among the group receiving 100,000 units of penicillin the incidence of gonorrhea was 1.8 per 1,000 liberties or 105 cases per 1,000 men per year. When the dose of penicillin was increased to 250,000 units during the latter third of the study the incidence was decreased much further, only one doubtful case developing in 569 liberties. Following this study all men were placed on a voluntary basis. After returning from liberty one 250,000 unit peroral tablet of penicillin was available for those who wanted it. During an 8-week period, Eagle *et al* reported in *Public Health Rep.* (63:1411

—Continued on page 60a



POTENT TREATMENT *for* SPASMS OF SMOOTH MUSCLE

NOVATRIN* with PHENOBARBITAL performs the dual function of a potent antispasmodic and a sedative. Each tablet contains 1/4 grain phenobarbital and 1/12 grain of Novatrin (homatropine methylbromide) which, by depressing the vagal and parasympathetic nerve terminals, will produce an antispasmodic effect comparable to that of 1/25 to 1/50 grain of atropine sulfate. But the toxicity of Novatrin is only about one-thirtieth that of atropine so that undesirable side effects, such as dryness of the mouth and blurring of vision, are extremely unlikely to occur. Novatrin with Phenobarbital is recommended when nervous tension or emotional strain complicate and aggravate spasms of smooth muscle and, in general, when other forms of antispasmodic therapy fail to produce a satisfactory response. *Specifically recommended in —*

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BILIARY AND RENAL COLIC
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ENTEROSPASM AND COLITIS

Novatrin WITH *Phenobarbital*

LITERATURE AND SAMPLES AVAILABLE ON REQUEST.

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CAMPBELL PRODUCTS, Inc., 79 Madison Avenue, New York 16, N. Y.

—Continued from page 58a

(Oct. 29, 1948)), that there were 1,943 liberties involving 225 individuals. In this group 7 cases of gonorrhea developed but 6 and perhaps all 7 of these were in men who had elected not to take the penicillin tablet.

The average frequency at which penicillin was taken was 1.1 tablets a week. There was no evidence of penicillin-fast strains of gonococcus development, no evidence of sensitization to penicillin, and no instance of suppressed syphilitic infection.

Synergism of Sulfadiazine and Streptomycin on Brucella

Experiments using sulfadiazine and streptomycin alone and in combination on *Brucella abortis, Br. suis,* and *Br. melitensis* in developing chick embryos was described by Shaffer and Spink in *J. Immunol. (60:* 405 (1948)). They found that streptomycin alone caused a maximum prolongation of survival time of infected, developing chick embryos when a dose of 320 micrograms was used. Sodium sulfadiazine alone gave a maximum prolongation of survival time with a dose of 0.48 mg. When these drugs were combined there was a marked reduction in the amount of each required to give maximum protection. Only 40 micrograms of streptomycin and 0.06 mg. of sodium sulfadiazine were required to give this maximum effect. The authors stated that the primary significance of the synergistic action between these two drugs is in the effective elimination of the organism from the tissues of the chick embryo. Since the elimination of the brucella organisms from the tissues in human brucellosis is of primary concern the authors feel that streptomycin and sulfadiazine should always be given together in the treatment of human brucellosis.



. . . to relieve the strain of

CHRONIC IRREGULARITY

WHEN aberrations of the menses suggest that normal function has overstepped the bounds of physiologic limits—the physician is often confronted with a condition which proves highly distressing to the patient. For such cases (as in amenorrhea, dysmenorrhea, menorrhagia and metrorrhagia), many physicians rely on Ergoapiol (Smith) with Savin as the product of choice. By its unique inclusion of all the alkaloids of ergot (prepared by hydroalcoholic extraction), and the presence of apiol and oil of savin—Ergoapiol (Smith) with Savin provides a balanced and sustained tonic action on the uterus, affording welcome relief in many functional catamenial disturbances. It produces a desirable hyperemia of the pelvic organs, stimulates smooth, rhythmic uterine contractions, and also serves as an efficient hemostatic and oxytocic agent. General dosage: 1 to 2 capsules 3 to 4 times daily.

Write for your copy of the new 20-page brochure "Menstrual Disorders—Their Significance and Symptomatic Treatment"
Supplied only in ethical packages of 20 capsules.

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RAYSAL WITH SUCCINATE . . . The *ethical* salicylate-succinate formula . . . Employs three principal ingredients—salicylate, iodine, and succinate . . . designed to combine the almost specific antiarthritic and antirheumatic action of the salicylates, the stimulating and nutritionally corrective effects of iodine and the salicylate detoxifying action of succinic acid.

An ideal companion medication for other therapeutic measures employed in arthritis and rheumatism. RAYSAL WITH SUCCINATE will enhance the efficiency of RAYFORMOSIL . . . a safe and effective combination for use in your next case. Sample and literature will be sent upon request.

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ENTERIC COATED TABLETS (SALOL)

Raysal	5 grains
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NEWS AND NOTES

Millions for Treatments Fail To Stop Annual Hair Fall

Bald and balding American men are spending millions of dollars annually for futile hair-saving and dandruff-curing treatments, says a report of the American Medical Association Committee on Cosmetics.

Ineffective "hair tonics" sold at drug and department stores and remedies sold by mail order also add up to gratifying sales, the report points out.

Neither massage, mechanical devices, "tonics," ultra-violet light, hormones, vitamins, nor any other treatment will regenerate hair lost in ordinary baldness of older men or in premature baldness of young men, the committee emphasizes.

In rare instances, continued massage may produce a fine, colorless, fuzzy down similar to that seen on the heads of some newborn babies. This fuzz cannot be considered either in length or appearance to be a real growth of hair or a precursor. Frequently, after reaching a length of about half an inch, the fuzz drops off and is not replaced.

"In any event, its appearance is without cosmetic value, since it is invisible except on close, well lighted inspection," the report points out.

Ultra-violet light has some usefulness in trained hands, but only those whose scientific background makes them capable of understanding the limited available data and the potential health hazards should undertake the supervision of such treatments.

—Continued on page 64a



NUMOTIZINE THE PRESCRIPTION CATAPLASM

—a continuous warm, moist dressing in the treatment of local inflammations, furunculoses, sprains, tonsillitis, chest conditions.

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EST. 1868



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3 OUTSTANDING ADVANTAGES in PSORIASIS

RIASOL has met with outstanding success in the treatment of psoriasis. Among the reasons for its success are three very important factors.

1. *Patient Acceptance.* Patients are prompt to accept a prescription such as RIASOL, because they usually learn that it is effective in clearing the ugly psoriatic patches.

2. *Patient Cooperation.* Encouraged by the cosmetic relief and mental assurance afforded by RIASOL, patients are willing to cooperate by continuing treatment for the desired period.

3. *Patient Satisfaction.* Generally, Riasol not only clears the disfiguring lesions, but often reduces recurrences. It is simple, convenient and pleasant to use. Thus, even the most fastidious patient is satisfied with Riasol.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, non-staining, odorless vehicle.

Apply daily after a mild soap bath and thorough drying. A thin, invisible, economical film suffices. No bandages necessary. After a week, adjust to patient's progress.

RIASOL IS NOT ADVERTISED TO THE LAITY. Supplied in 4 and 8 fld. oz. bottles, at pharmacies or direct.



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RIASOL for PSORIASIS

NEWS AND NOTES

—Continued from page 62a

Lip Cancer May Be Influenced By Complexion Type

The possibility that lip cancer may have a genetic background and may not be primarily due to the influence of sunlight, as some authors have suggested, was revealed recently in an Army Dental Corps exhibit, prepared by the Army Institute of Pathology and shown at a meeting of the District of Columbia Dental Society.

After grouping lip carcinoma records according to the patient's complexion type and place of birth, scientists in the Dental and Oral Pathology Section of the Institute last week discovered that of 528 lip cancers among white soldiers of World War II, the majority of patients were of fair or ruddy complexion.

Only 9 per cent of World War II soldiers with proven lip cancer had medium or dark complexions. This minority group reported nativity in every geographic quarter of the United States. Army dental pathologists point out that the significance of complexion type as a genetic factor in cancer cannot be established conclusively until it is determined how long each patient lived in the area of his birth, the degree of exposure to sunshine, and other possible causative agents. They also point out that the Army is not able to make comparable studies of lip cancer in women.

With regard to possible elimination of this type of cancer, responses to 637 follow-up inquiries sent out by the Army In-

ARTHRITIS → Lyxanthine Astier ← CHRONIC RHEUMATISM

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beneficially affects physiological disturbances, frequently providing symptomatic and objective relief

Tarry, J. M.: M. Times 73:101 (April) 1945.

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Neuropsychiatry

BEAUTIFUL — QUIET — HOMELIKE — WRITE FOR BOOKLET

Frederick W. Seward, M.D.—Director

Frederick T. Seward, M.D.—Resident Physician Clarence A. Potter, M.D.—Resident Physician

stitute of Pathology showed that 92.5 per cent had no recurrences. Of these, 139 had been treated more than five years before, 40 had been treated more than ten years before, and one had been treated 32 years before. Surgical removal of the lesion in an early stage has been found the most effective form of treatment.

Flour Bleaching Agent Not Cause of Epilepsy

The stir caused by the implication of many news sources that a bleaching agent used in flour was an important cause of human epilepsy has been quieted by University of Wisconsin scientists.

Results of experiments recently completed strongly indicate that the bleaching agent is not toxic for humans.

A control group of 19 persons, five of them epileptics, showed no ill effects after being fed on a diet containing high concentrations of agene, common name for the bleaching agent. The tests covered periods up to 210 days.



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The Answer to many gynecological problems



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TWO DOUCHE POWDERS

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2 bactericidal	5 penetrating
3 keratolytic	6 long-lasting

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Relaxes smooth muscle spasm within three minutes following intramuscular injection. Provides direct, physiologic relief of pain due to many types of smooth muscle spasm.

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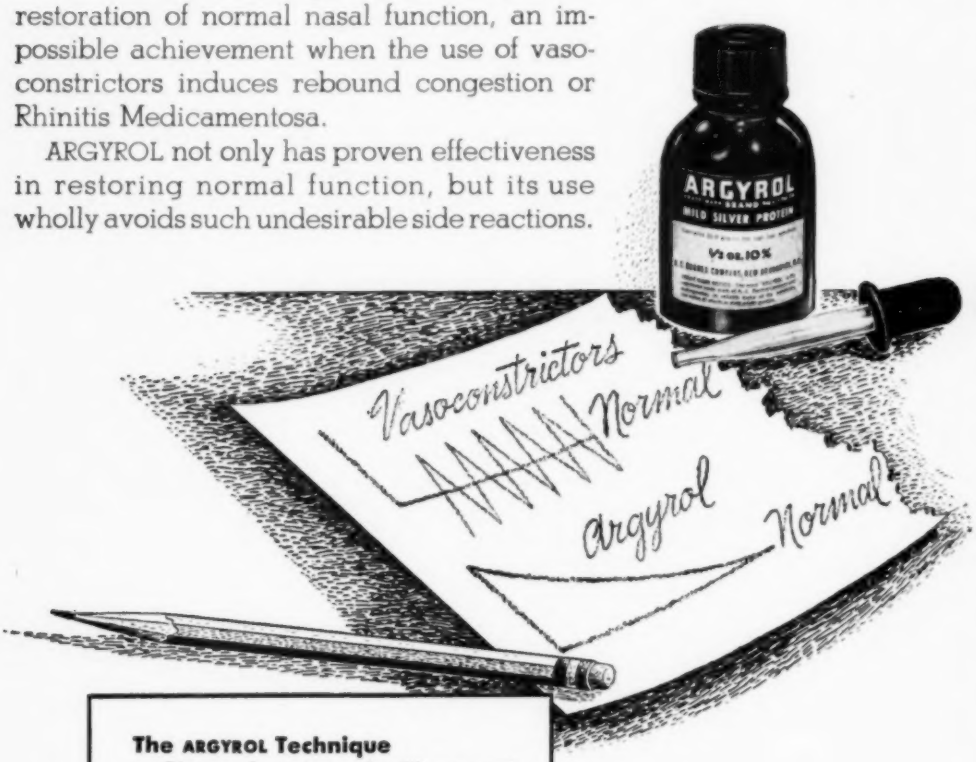
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